MINIMUM LEVELS OF LEARNING AT PRIMARY STAGE

Report of the Committee
set up by the
Ministry of Human Resource Development
(Department of Education)
Government of India

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

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Foreword

Achieving well-defined standards of learning by children in schools is a powerful success indicator of the system that works. It is in this context that the National Policy on Education (NPE) 1986 emphasized the need for laying down Minimum Levels of Learning (MLLs) for each stage of school education as a prerequisite for setting performance goals for the teachers. This was visualized so that these could serve as effective guides for organizing teaching-learning experiences and evaluating pupil achievement.

Recognizing this, the Ministry of Human Resource Development (MHRD), Department of Education, set up a committee under the chairmanship of Prof. R.H. Dave, formerly of the Unesco Institute for Education, Hamburg, Germany to study afresh the learning outcomes defined in the existing curriculum and to lay down Minimum Levels of learning (MLLs) that all children who pass the primary stage of education must achieve. The need to lay down Minimum Levels of Learning (MLLs) arises from the need for provision of equal access and conditions for success to all children irrespective of caste, creed, location or sex. This committee examined the existing curriculum of the primary stage of education in a series of workshops and meetings involving primary school teachers, non-formal education (NFE) instructors, eminent educationists and the State Councils of Educational Research and Training (SCERTs). This report submitted by the committee is printed and published by the NCERT as desired by the MHRD.

The report may be seen as an attempt at presenting a curriculum that will equip all children who complete primary education with the minimum/essential learning outcomes that will enable them to understand their environment more meaningfully and to function as socially useful and contributing adults. The curriculum recommended here reduces substantially the load of information expected of a primary school child, thereby aiming at relevance, functionality and achievability of the learning outcomes. It is expected that the learning outcomes outlined here will be achieved to 'mastery level' by all students, within a specified time limit and a reasonable input of facilities. Taken together with the developmnent of a comprehensive evaluation system, these MLLs will provide the teacher and the system, an indication of performance effectiveness.

Another important concern for the primary stage is the need for comparability of standards between the formal and non-formal systems of education. This assumes importance not only because of expectations of the National Policy on Education in this regard, but more so because unless we

can ensure achievability of Minimum Levels of Learning (MLLs) by the disadvantaged and deprived sections of the society—the dropouts, working children and girls—the majority of whom find scope for education only in the non-formal system, the goals of equity and reduction in disparities will not be fully served. Therefore, this aspect has been kept very much in view while formulating recommendations of MLLs in this report.

This report is limited to curricular areas of language, mathematics and environment studies. Although it does not cover the complete curriculum of the primary stage in as much as work experience, art education and health and physical education are concerned, it indicates the direction in which further curriculum exercises must be undertaken. There is a need to make a similar examination of the curriculum and lay down MLLs for these areas of curriculum and also for the curriculum content of the upper primary stage so that the complete spectrum of elementary education is covered ultimately.

The recommendations contained in the chapter on 'Action Plan of Implementation', require working out of a scheme to achieve the following:

(i) *set* Minimum Levels of Learning as performance goals for the formal and non-formal systems,

(ii) *introduce* continuous comprehensive evaluation in the classroom in order to give teachers a tool to measure students' achievement.

(iii) *provide* systematic teacher training in learning evaluation techniques, and

(iv) *relate* the provision of inputs and facilities to differentiated levels of achievement obtained in schools, so that, by diverting greater resources where standards are lower, this curricular reform can spearhead a larger programme for reduction of disparities.

To this effect, the NCERT has been assigned responsibilities of implementation by the MHRD. A Core Group set up for this purpose is initiating a close examination of these recommendations by individual state governments so that the NCERT has their cooperation and the benefit of their views in drafting the detailed plan of action for introducing the MLLs.

It is hoped that implementation of the MLL approach in teaching-learning process will go a long way not only in shifting the emphasis from content to process of learning, but also in improving the quality of education for all learners.

DR K. GOPALAN
Director
National Council of Educational
Research and Training

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CHAPTER 1

Introduction

1. Background

1.1 In line with the commitment of the country to provide elementary education to all children, educational facilities have got tremendously expanded during the post-independence period. This is particularly true of facilities at the primary education stage. The number of primary schools in the country has increased from 2.2 lakhs in 1950-51 to nearly 6.32 lakhs. In addition, there are at present nearly 3 lakh non-formal education centres providing primary level education to out-of-school children in the age-group 9 to 14. This expansion has definitely helped in making primary level education more easily accessible to a larger section of the population. In fact, according to the All-India Educational Survey conducted by the NCERT in 1986, nearly 95 per cent of the population are served by a primary school within a walking distance of 1 km. However, the large-scale expansion has resulted in the creation of educational facilities with widely varying quality in terms of institutional infrastructure, teaching-learning processes as well as the quality of students passing out of these institutions. The quality variations become more pronounced in certain states, between schools of rural and urban areas, between schools managed by government and non-government bodies, and so on. Recognizing the urgent need for rectifying this anomalous situation with respect to quality, the *National Policy on Education 1986* calls for paying immediate attention to (i) improving the unattractive school environment, the unsatisfactory condition of buildings and inadequacy of instructional material; and (ii) laying down minimum levels of learning that all children completing different stages of education should achieve. Keeping this policy directive in view, the *Report of the Working Group on Early Childhood and Elementary Education Set up for Formulation of Eighth Five Year Plan* states:

> The targets need to be spelt out not only in terms of participation, but also in terms of quality and outcomes. During the Eighth Plan, it should be our aim to bring about a substantial improvement in quality of education through improved infrastructure, improved teacher eduction, and substantial improvement in quality and quantity of learning materials. In terms of outcomes it shall have to be ensured that minimum levels of learning are laid down with reference to the conclusion of primary and upper primary stages and an appropriate

evaluation system created to ensure achievement at least of the prescribed levels of learning.

1.2 In fact, significant efforts towards specification of Minimum Levels of Learning (MLLs) had already been made at the NCERT during 1978 in connection with the UNICEF-assisted projects on 'Primary Education Curriculum Renewal' and 'Developmental Activities in Community Education and Participation'. As part of these projects, a 'Minimum Learning Continuum' was drawn indicating the learning outcomes expected to be achieved by all children completing Classes II, III, IV and V. The Primary Education Curriculum Renewal Project was evaluated in 1984 using a set of achievement tests developed for all the primary classes based on the competencies specified in the Minimum Learning Continuum. Utilizing the empirical evidences collected through this evaluation study and following the National Policy on Education 1986, the NCERT prepared another document entitled, 'Minimum Levels of Learning at the Primary Stage'.

1.3 In the context of these exercises and the specifications made by the Eighth Plan Working Group, the Department of Education, Ministry of Human Resource Development organized a seminar in December 1989 on the theme, 'Basic Learning Needs and Levels of Attainment'. Various issues related to basic learning needs of the children at the primary stage, the need for specifying minimum levels of learning and creation of appropriate mechanisms for assessment of learner attainment were discussed during the seminar. On the issue of laying down minimum levels of learning the seminar recommended for initiating concrete efforts at the national level.

2. Committee on MLL: Composition and Terms of Reference

Against this background, the Department of Education, Ministry of Human Resource Development, Government of India set up the present committee vide order No. 74/3/89-Desk(TE) dated 5 January 1990.

2.1 Terms of Reference

The terms of reference of the committee were as under:

1. Draw up minimum levels of learning for Classes III and V.
2. Recommend a procedure for comprehensive learner evaluation and assessment.
3. Look into the non-cognitive areas of learning and suggest concrete ways in which teaching in these areas can be improved.

The committee was further informed that the terms of reference related to both formal and non-formal systems of education.

2.2 Members of the Committee

The committee consisted of the following members:

1. Dr R.H. Dave, Director (Retd.), Unesco Institute for Education, Walterstrasse 120, 2000 Hamburg 61, Germany

2. Shri S.C. Behar, Principal Secretary and Chairman, Professional Education Board, Government of Madhya Pradesh, Bhopal
3. Dr C.J. Daswani, Head, Department of Non-Formal Education and Education of SC/ST, NCERT, New Delhi
4. Dr R. Govinda, Head, School and Non-Formal Education Unit, NIEPA, New Delhi
5. Dr John Kurrien, Director, Centre for Learning Resources, B-210, Gera Park, 15, Boat Club Road, Pune
6. Professor J.S. Rajput, Joint Educational Adviser (EE), Ministry of HRD, Department of Education, New Delhi
7. Smt Kiran Dhingra, Director (EE), Ministry of HRD, Department of Education, New Delhi
8. Dr J.N. Joshi, Professor, Department of Education, Punjab University, Chandigarh
9. Shri N.J. Bhatt, Gujarat State Council of Educational Research and Training, Ahmedabad
10. Smt Marwah, Teacher, N.D.M.C. School, New Delhi
11. Dr Pritam Singh, Professor and Head, Navodaya Vidyalaya Cell, NCERT, New Delhi, *Member Convener*

In addition, the following persons were associated with the work of the committee and participated in its deliberations:

1. Shri Prabhakar Singh (Retd. Field Adviser, NCERT), 574 Mumfordganj, Allahabad
2. Professor H.S. Srivastava, Head, DMES&DP, NCERT, New Delhi
3. Dr H.K. Dewan, Ekalavya, Bhopal

3. Procedures Followed by the Committee

3.1 The committee met five times for durations of one to five days between January and August 1990. It invited some more specialists to attend its first meeting and held a wide range of discussions. The committee decided to follow the following broad parameters for work within the framework provided by the terms of reference:

1. The committee will take an integrated view of primary level education being provided in the country through formal as well as non-formal streams. Accordingly, the minimum levels of learning to be specified by the committee will be applicable to primary level education, both in the formal and the non-formal streams.
2. The committee recognized that the curriculum prescribed for primary level education consists of a number of subject areas. It was decided that the committee will draw minimum levels of learning only in respect of three subjects, namely, language (mother tongue), mathematics and environmental studies.
3. Even though the terms of reference required the specification of Minimum Levels with respect to Classes III and V only, the committee decided to carry out the exercise with respect to all the five classes at the primary stage. This was considered necessary in

order to ensure proper progression of competencies within each class as well as across the five classes.

4. The committee recognized that consideration of non-cognitive aspects of learning is a wide area and demands a separate exercise. Therefore, it was decided that the present exercise may not deal with the psychomotor domain and even in the effective domain the committee would only indicate the direction in which educational programmes be reoriented for imbibing a few basic characteristics relevant to personal and social growth of the individual as well as national development.

3.2 Following these basic clarifications regarding the terms of reference and the work of the committee, specific tasks were taken up by the members and others associated with the work of the committee. The draft material developed through this process was presented and discussed in the subsequent meetings of the committee. The revised versions were provisionally adopted at the fourth meeting of the committee held in June 1990. It was also decided to hold a wide range of consultations with practising teachers from the formal as well as the non-formal streams before finalizing the MLLs, the scheme of evaluation and suggestions for strengthening instructional programmes in the non-cognitive areas of learning.

3.3 Accordingly, consultative meetings of teachers were held in seven States of Andhra Pradesh, Bihar, Gujarat, Madhya Pradesh, Maharashtra, Rajasthan and Tamil Nadu with the help of the concerned State Councils of Educational Research and Training and some voluntary agencies involved in non-formal education programmes in these States. Each meeting was of five-day duration and had 30 to 35 participants. In all, 227 primary school teachers and NFE instructors were consulted through this process. The suggestions given by the participants of the meetings were collated and placed before the committee in its fifth and final meeting in August 1990. In the light of the reaction of the teachers/instructors, the earlier drafts were revised and rewritten. The committee also drew up a plan of action for implementing the recommendations of the committee.

CHAPTER 2

Minimum Levels of Learning: Some Important Features

1. Introduction

1.1 The need to lay down Minimum Levels of Learning (MLL) emerges from the basic concern that irrespective of caste, creed, location or sex, all children must be given access to education of a comparable standard. The major focus of the policy formulation behind the MLL exercise is upon equity and reduction of existing disparities. The effort is to combine quality concerns with concerns for equity keeping in view the developmental needs of children from the disadvantaged and deprived sections of the society, the dropouts, working children, and girls, who constitute the majority of school-going age population in this country, and to whom, in all likelihood, at least for some time to come, primary education will be the only opportunity for structured learning. This basic concern underscores the approach adopted by the committee in defining the minimum levels of learning.

1.2 Minimum levels of learning can, perhaps, be specified in a variety of ways. For instance, MLLs can be stated as expected learning outcomes defined as observable terminal behaviours. One may also go for a taxonomic analysis of learning objectives such as knowledge, comprehension, application, analysis, synthesis, evaluation and so on and accordingly indicate the expected learning outcomes. One can also state the MLLs in terms of learning competencies expected to be mastered by every child by the end of a particular class or stage of education. These different approaches for stating the MLLs are not mutually exclusive. Of the various alternatives available, the committee has chosen to state the MLLs in terms of terminal competencies. Each competency can be further delineated in terms of sub-competencies while specifying the content inputs or while designing specific measures of learning.

1.3 It may be noted that the set of MLLs would actually represent the *rational criteria* adopted for judging the adequacy of the curricular inputs provided and the learning outcomes to be expected. There can be no finality with respect to any set of MLLs. This applies to the set of MLLs developed by the committee also. Two basic considerations kept in view while formulating the MLLs are: (i) the cognitive capabilities of the children at different classes or grades corresponding to different stage of development; and

(ii) the empirical reality in terms of the enabling environmental conditions that characterize the primary education programmes.

1.4 No attempt has been made by the committee to provide a technical analysis of the meaning of Minimum Levels of Learning. The present section discusses some of the important operational features which have guided the committee in formulating the MLLs.

2. Specification of MLL: A Quality Issue

The emphasis on defining precisely what children should have learnt by the end of every stage of education stems principally from three concerns.

2.1 Firstly, laying down of well-defined levels of learning is expected to introduce a sense of direction and a greater element of accountability in the system. It is often pointed out that neither teachers and pupils, and as a consequence, nor parents and educational planners seem to know where they are and where they ought to be. Without a clearly defined set of criteria for measuring student progress, it is not surprising that the teacher lose sight of their goals, and it is far-fetched to presume that such measures as regular attendance and the completion of the syllabus in time can effectively substitute measures of actual attainment of learning. As a natural consequence, the pupils also are likely to lose a sense of purpose and motivation in their studies, and many parents may get to doubt the worthwhileness of schooling rather than employing the children more usefully elsewhere. Stating precisely what the objectives are and clearly defining. The minimum levels of learning that *all children must achieve* at a given stage of education, is thus seen as one of the important prerequisites for infusing a sense of direction to the system and thereby paving the way for improving its accountability.

2.2 Secondly, it is expected that MLL will provide an effective tool for programme formulation for school improvement. The quality of a school or educational system should, in the real sense, be defined in terms of the performance capabilities of its students and graduates. Yet, in practice, since inputs into the teaching process are generally easier to measure than education's multifaceted outputs, quality is often depicted in terms of the former than the latter. However, at the present juncture, when the focus of school improvement programmes tend to be on factors that are likely to multiply costs per capita, it is necessary to set up measures for judging the quality of schools by what students are actually learning. What is it that makes a good school? Is it better buildings, more equipment or better qualified teachers? To what extent can we increase inputs to increase output in terms of pupil achievements? What kind of inputs yield better output? In order to find proper answers to these questions and provide inputs selectively, we have to first define our measure of output in the form of expected standard of achievement by practically all children.

2.3 Thirdly, and fundamental to the issue, there is the widely held perception that in a vast majority of government and municipal schools children can

barely read their own textbooks even after spending as many as five years in school. Considering that, to a large number of them, opportunity for education is not likely to be available beyond the primary stage and what they learn here must sustain them throughout their lives, it becomes imperative that the educational system makes sure that these precious school years of the children are not wasted. That all children, irrespective of the conditions they come from and the condition of the schools they attend, reach a minimum level of learning before they finish primary education that would eventually enable them to understand their world and prepare them to function in it as permanently literate, socially useful and contributing adults.

3. Specification of MLL: A Curriculum Issue

3.1 Every curriculum, as it attempts to modify the cognitive as well as non-cognitive domains of development of the learner, lays down specific educational objectives and the corresponding learning outcomes expected on the part of the learners. Usually, these are defined with reference to targets of educational achievement under ideal conditions of learning, enabling the learnings to fully realize their inherent potential and engage in socially useful life. However, the criticism levelled against the existing set of curricular prescriptions and the corresponding learning outcomes is that they are only designed to prepare students for secondary and university education. Consequently, there is an overload of content, of facts and information that would have very little relevance to the life or needs of a majority of students.

3.2 Also, it is often pointed out that the outcomes of learning expected do not seem to be based on the maturity level of the learner especially during the initial years of elementary education. This ambitiousness in the primary level syllabus is now increasingly recognized as counter-productive to excellence in learning and dangerous to the concerns of equity. The syllabus load often compels the teacher to ignore altogether certain basic principles of the teaching-learning process. The need to complete the syllabus seems to take precedence over the need to progress according to the pace of learning of the whole class and teachers find themselves forced to ignore the strugglers, forego attempts at remedial teaching or considerations for experimentation, exploration, observation or activity-based learning. The conventional textbook and lecture method of teaching, being the quickest way to complete the syllabus, becomes the best option available, forcing upon the students a joyless rote memorization, an overemphasis upon textbooks and in many cases, a reliance on help from outside the school. The disadvantage this builds into the system for the already deprived needs no special elaboration—for those who have no support for learning at home or outside the school, no proper textbooks and learning aids, and who consequently have a complete dependence on schools for mastering their syllabus, it leaves little scope but for repetitions or dropping out. Even many of those who manage to complete, despite these handicaps, attain at best an incomplete mastery of the basic skills.

streamline the processes involved. Presently, no systematic learner evaluation procedures are adopted at the elementary stage in many of the schools. Most states follow a no-detention or automatic promotion policy, according to which children are not to be detained in the same class to repeat the course, since this has been identified as a main reason for dropping out without completing even the primary stage of education. The no-detention policy presumes an intrinsic ability of all children to learn provided they are taught well enough, and places the onus upon the teacher and the school to create conditions whereby learning can effectively take place. It is, however, observed that many teachers interpret 'no detention' as 'no testing' and have altogether given up doing pupil evaluation, with the result that, very often, no one is fully aware of the learning status of the children till they reach the terminal class of the elementary stage. Taking stock of this situation, the Working Group for the Eighth Five Year Plan (1989) has recommended the introduction of a comprehensive evaluation system:

> Students should have a well-defined goal of acquiring a mastery level, particularly in subjects which serve as the basic tools of learning. Parents seem to feel dissatisfied with the levels of learning being achieved in schools and would feel happier with a testing system introduced. Teachers too need to know more clearly about the expected outcomes in the courses they teach. Educational administrators would have in the system of tests of learners, the instrumentality to appraise the performance of institutions and teachers.

For MLLs to provide this well-defined goal of acquiring a mastery level it is necessary that they must give a clear-cut specification of expected learning outcomes, which would permit the construction of criterion-referenced tests by the teachers. Results of such tests based on the MLLs should be such that the teacher can identify which specific learning outcomes or competencies have not been mastered by the learner, help the learner to relearn the clusters of competencies representing specific unit, as well as prepare correctives for remedial instruction quite precisely. Thus MLLs stated in easily evaluable terms should help the learners achieve mastery levels as they move from one unit to the next. The attempt has thus been to set the MLLs in such a way as to make assessment of learner attainment easy for the teacher, whether it is done through written, oral or other types of tests.

4.4 Learning Continuum

The endeavour has been to set MLLs in as simple and comprehensible manner as possible, specifying the competencies to be mastered under each learning unit from Class I through Class V. Learning has been seen as a 'continuum', in which the units are sequenced hierarchically so that the clusters of competencies in one unit build as directly as possible on the competencies in the preceding unit. It is firmly believed that if the children progress systematically through this continuum, mastering the concerned sets of competencies in each unit before they move on to the next, learning each

subsequent unit will be more enjoyable and meaningful, and the achievement of minimum levels of learning will be facilitated.

5. Comparable Learning in NFE

5.1 Even though the MLLs are being specified in terms of five classwise stages, the underlying concept of 'learning continuum' makes this division only indicative and not rigid. In practice, the pace of learning of the child will decide how long it should take to reach the prescribed MLL; and age, earlier learning experience, learning time within and outside school are some of the factors that will decide the pace.

5.2 It is conceivable, therefore, to prescribe the same levels of learning for the NFE system, or any other alternative system for primary education. Indeed, this exercise of laying down a level of learning that has regard not to the syllabus and contents of primary schools but specify expected learning outcomes in the form of functionally relevant skills and competencies should help in answering in a convincing manner the questions regarding comparability of learning standards between formal primary schools and alternative models. The question no longer remains one of NFE conforming or not to the primary school norms, but becomes one of the viability of different models and methodologies to attain prescribed levels of learning. From questioning the rationale of the NFE system, the concern shifts to issues regarding the duration, quality and teaching processes of the various models and hence, logically to the inputs required to ensure that the prescribed levels of learning are effectively reached by all learners.

6. Cognitive and Non-Cognitive Areas of Learning

According to the terms of reference of the committee, the present exercise of delineating MLLs is confined to the curricular areas of

- Language
- Mathematics
- Environmental Studies (including Social Studies and Science).

While these are very crucial subjects for primary education, other subjects such as Physical Education, Work Experience and Music & Art Education should not be excluded from the total curriculum plan. Similarly, the non-cognitive aspects of the curriculum are as important, if not more, as cognitive areas. Not only that the non-cognitive learning outcomes cut across different subjects of the curriculum mentioned above, but they also call for a variety of co-curricular activities organized within and outside the school. In view of the limited scope of this committee's work and limitations of time, the committee has just briefly mentioned in this report certain key personal and social qualities that lead to character building. In brief, further work will be needed to develop specifications of MLL with respect to those subjects that have not been dealt with in the report of this committee.

CHAPTER 3

Minimum Levels of Learning in Language

At the primary level, language occupies a pivotal place in the curriculum. The basic skills acquired through language learning facilitate learning of concepts in other areas. Moreover, in the shaping of the personality of the child and in all his/her effective transactions in the day-to-day life situations, the nine basic language skills, namely, listening, speaking, reading, writing, comprehension of ideas (through listening and reading), functional grammar, self-learning, language use, and vocabulary control play significant roles.

Objectives of Language Learning

At the primary stage, the main objectives of language learning are to:

- be able to listen with understanding;
- be able to speak effectively in both informal and formal transactions;
- be able to read with comprehension and enjoy reading various kinds of instructional materials;
- be able to write neatly, with logical sequence and creativity;
- be able to comprehend ideas through listening and reading;
- be able to use grammar functionally in various contexts;

Gradation of Competencies for Different Classes

The minimum levels of learning have been stated in terms of competencies that every child should be able to develop in the school or in the NFE centre. (The middle number in the numbering system used shows the year or the class).

The competencies have been listed year-wise. However, the competencies of Class I are to be carried forward through Classes II to V. Competencies listed under each class are the starting points for building these competencies. These should be carried throughout till the end of primary schooling. (See, for example, competencies 4.1.1 to 4.5.1)

Inter-linkages between Competencies

The first four competencies (Listening, Speaking, Reading and Writing) relate to the four language skills that are well known. These competencies are basic and have to be established in any effective language learning context.

Although these competencies have been listed separately for convenience of specification of levels, the competencies are naturally interlinked.

This inter-linkage between four basic competencies is reflected in Competency 5 which attempts to specify levels of comprehension of ideas in language through listening and reading. It should be noted that just as listening and reading are interlinked so are reading and writing, and listening and speaking. In the same way all the competencies listed here have linkages with each other.

For effective transactions of these competencies the teacher will have to provide interesting and dynamic linkages between the various competencies.

Teaching-Learning Strategies

A variety of interesting activities in the form of narration of events, peer group discussions, story-telling, drama, dialogue, question-answer, quiz competition, riddles, word-play, debates during school functions, and songs are to be organized for making language learning a joyful activity. Self-learning skills and functional use of language are also to be developed by encouraging the study of interesting children's books, picture dictionary and peer group activities.

Pupil Evaluation

The MLLs are designed to assist the teacher (or NFE Instructor) to evaluate whether the learner is able to develop these competencies through the teaching-learning strategies. In pupil evaluation the major emphasis should be on creating informal social situations in the class. Functionality and creative use of language in day-to-day life situations should be the other points in consideration. Besides textbooks, other materials like picture cards, word cards, participation in social situations may also be utilized for assessing pupil's level of learning competencies in language.

Statement of MLLs in Language

Competencies	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
1. Listening	1.1.1. Listen with understanding to simple, familiar and popular rhymes, poems and tales	1.2.1 Listen with understanding to simple but unfamiliar poems, songs and stories	1.3.1 Listen with understnding to narrations, descriptions, word-play and riddles	1.4.1. Listen with understanding to simple speeches in familiar situations	1.5.1. Listen with understanding to recitations, plays and debates (during a school function or competition)
	1.1.2. Understand conversation and dialogues in familiar situations	1.2.2. Understand conversation and dialogue in familiar situations	1.3.2. Understand conversation and dialogues in unfamiliar situations	1.4.2. Understand conversation and dialogues in unfamiliar situations	1.5.2. Understand conversation, dialogues and discussion in unfamiliar situations
	1.1.3. Understand oral requests and simple instructions in familiar situations	1.2.3. Understand oral requests, instructions, commands and questions in familiar situations	1.3.3. Understand oral instructions for playing games, carrying out simple activities	1.4.3. Understand series of oral instuct-ions for performing an activity	1.5.3. Understand instructions for perform-ing a group activity
2. Speaking	2.1.1. Repeat simple sentences correctly	2.2.1. Pronounce all sounds of the language	2.3.1. Speak with correct pronunciation	2.4.1. Speak without stopping unnaturally	2.5.1. Speak fluently and naturally
	2.1.2. Recite simple rhymes, poems and songs in a group with gestures and actions	2.2.2. Recite poems and songs in a group and individually	2.3.2. Narrate simple known stories with proper modulation and action	2.4.2. Recite with proper delivery	2.5.2. Speak on simple known themes
	2.1.3. Answer simple questions requiring yes/no answers	2.2.3. Answer simple questions requiring full answers	2.3.3. Describe familiar things and objects	2.4.3. Describe unfamiliar things and objects	2.5.3. Describe situations and events

Competencies	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
	2.1.4. Ask simple questions	2.2.4. Seek information about familiar things	Ask more complex questions	2.4.4. Take part in simple classroom discussion	2.5.4. Take part in plays, debates and make formal announcements
3. Reading	3.1.1. Recognize common letters of alphabet in combinations and singly	3.2.1. Recognize infrequent letters and conjunct letters	3.3.1. Read road signs, hoardings and simple notices (as on a notice board)	3.4.1. Read comic-strips and posters	3.5.1. Read simple figures, charts, maps
	3.1.2. Read large print and handwriting on blackboards, flash cards, etc.	3.2.2. Read large and small prints	3.3.2. Read handwriting of other children	3.4.2. Read handwriting letters	3.5.2. Read print and handwriting freely
	3.1.3. Read aloud simple known words (of generally not more than three syllables)	3.2.3. Read aloud rhymes, poems, songs and simple stories	3.3.3. Read simple story books and other children's books	3.4.3. Read children's magazines	3.5.3. Read newspapers and other printed matter
4. Writing	4.1.1. Copy consonants, vowels, *matras* and conjunct letters	4.2.1. Copy words and sentences	4.3.1. Take distinctions of correct shape, sequence, spacing of letters and words	4.4.1. Write neatly and legibly	4.5.1. Write with correct format, spacing, etc.
	4.1.2. Write (from dictation) consonants, vowels, *matras* and conjunct letters	4.2.2. Take simple dictation of known words	4.3.2. Take dictation with unknown words	4.4.2. Take dictation with simple punctuation marks	4.5.2. Take dictation with all punctuation marks

Competencies	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
	4.1.3. Write simple familiar words and simple sentences	4.2.3. Write simple guided descriptive sentences	4.3.3. Write simple guided composition	4.4.3. Write guided composition using paragraphs and punctuations	4.5.3. Write short free composition including simple informal letters and dialogues
5. Comprehension of ideas (through listening and reading)	5.1.1. Recall simple information given in a short spoken text	5.2.1. Recall sequence of events in a short spoken or written text	5.3.1. Locate main ideas in a spoken or written text	5.4.1. Recognize simple cause-and-effect relationship between ideas and events in a spoken or written text	5.5.1. Make inferences from the information given in a spoken or written text
	5.1.2. After listening be able to answer questions of 'who' 'when' and 'where'	5.2.2. After listening be able to answer questions of 'what' and 'how'	5.3.2. After listening or reading a text, be able to answer questions of 'why'	5.4.2. After listening or reading a text, be able to answer questions using 'because', 'since'	5.5.2. After listening to or reading a text be able to answer and question using 'if ... then' and 'if not ... then'
6. Functional Grammar	6.1.1. Become aware of similarities between words on the basis of word ending	6.2.1. Become aware of similarities between words on the basis of word beginning, word ending and word roots (prefixes, suffixes and word stems)	6.3.1. Become aware of meaning relationship between words	6.4.1. Understand simple functional rules of sentence construction	6.5.1. Understand simple functional rules of parts of speech
7. Self-learning	7.1.1. Be able to use simple picture glossary where available	7.2.1. Be able to use simple picture encyclopaedia where available	7.3.1. Be able to use children's illustrated dictionary where available	7.4.1. Be able to use junior dictionary where available	7.5.1. Be able to use junior encyclopaedia where available

Competencies	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
8. Language use	8.1.1. Understand and use simple polite formulas	8.2.1. Speak politely and be attentive while listening	8.3.1. Take turn while speaking in group	8.4.1. Learn about difference between formal and informal language	8.5.1. Use appropriate language in formal and informal situations
9. Vocabulary Control	9.1.1. Be able to acquire reading comprehension vocabulary of approx. 1500 words	9.2.1. Be able to acquire reading comprehension vocabulary of approx. 2000 words	9.3.1. Be able to acquire reading comprehension vocabulary of approx. 3000 words	9.4.1. Be able to acquire reading comprehension vocabulary of approx. 4000 words	9.5.1. Be able to acquire reading comprehension vocabulary of approx. 5000 words

CHAPTER 4

Minimum Levels of Learning in Mathematics

Introduction

Objectives of Primary Mathematics

One of the major objectives of teaching primary mathematics is to enable children to solve speedily and accurately the numerical and spatial problems which they encounter at home, in the school and in the community. Primary mathematics should help children develop understanding of key mathematical concepts at each level through appropriate experiences with things from the physical world and the immediate environment. It should help children develop an understanding from the concrete to the abstract, from the specific to the general. The mathematics curriculum at the primary stage should, therefore, be directed to achieve the following objectives:

Ability to
- — perform computations, with speed and accuracy
- — translate verbal statements (a) in mathematical form using appropriate symbols, and (b) diagramatically
- — make reasonably good approximations and estimate measurements
- — apply mathematical concepts and skills to solve simple problems of day-to-day life
- — think logically
- — recognize order and pattern.

Note to Minimum Learning Competencies

1. The key mathematical concepts for each class are not listed in order of instructional sequence but have been classified under the following five areas of mathematical competencies:
   - (i) Understanding Whole Numbers and Numerals.
   - (ii) Ability to Add, Subtract, Multiply and Divide Whole Numbers.
   - (iii) Ability to use and solve simple problems of daily life relating to Units of Money, Length, Weight, Capacity, Area and Time.
   - (iv) Ability to use Fractions, Decimals and Percentage.
   - (v) Understanding of Geometrical Shapes and Spatial Relationships.
2. There is a separate section entitled *Readiness for Primary Mathematics* which precedes the above five areas. These are not to be viewed as

experiences to be given only at the beginning of Class I, but rather spread over Class I and Class II as developing readiness for the concepts and problem-solving which are to follow in Classes III-V.

3. The key mathematical competencies have been listed primarily to include for the most part concepts and application of skills which will help all children acquire certain minimum levels of functional mathematics. Mastery of these competencies will help children at present and in their later life to apply mathematical concepts and skills to solve problems relating to daily life. Therefore, these key mathematical competencies have included mental mathematical skills, estimation skills and the understanding of shapes and spatial relationships.
4. *Concrete objects and mathematical equipment need to be used throughout the primary stage in mathematics, especially wherever new key concepts have to be gained.* Though not always stated in conjunction with each skill/concept in the minimum learning competencies, it is imperative that this approach should be consistently followed. It has been stated in Class I as indicative and to highlight the significance of the experiential approach in the teaching and learning of mathematics. Such experiential learning will also enable children to find pleasure and excitement in the study of mathematics.
5. It should be noted that while it has not been stated, children need to revise the earlier stage of mathematical concepts before proceeding further. This revision has not been indicated with each concept.
6. In a few cases, the same mathematical competency has been repeated in two classes. This implies that while instruction and practice in the competency should be given in both classes, mastery should only be expected in the higher class.

Readiness for Primary Mathematics

1. Arrange objects in order according to size, length, thickness, weight and volume and use vocabulary describing the relationship, e.g. 'bigger than', 'smaller than', 'the same as', 'heavier', 'heaviest', etc.
2. Classify groups of objects according to various properties, e.g. size, shape, length, etc.
3. Compare positions of things and persons in terms of the distance from a given point of reference and use vocabulary describing the relationships, e.g. 'near', 'far', 'nearest', etc.
4. Perceive and reproduce simple patterns relating to shape, colour, position and quantity.

Statement of MLLs in Mathematics

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
1. Understanding Whole Numbers and Numerals	1.1.1. Counts from 1-20 using objects and pictures	* 1.2.1. Demonstrates understanding of place value of 2-digit numbers by expanding numbers between 10-99 into 10's and ones, and by expressing the expanded form as a 2-digit number	1.3.1. Recognizes and writes numerals from 100-1,000	1.4.1. Recognizes and writes numerals from 1,000-10,000	1.5.1. Recognizes and writes numerals from 10,000-1,00,00,000 (One crore)
	*1.1.2. Recognizes numerals and matches numbers to numerals from 1-100	1.2.2. States the place value of the digits within a 2-digit numeral	1.3.2. Writes numbers names from 1-100	1.4.2. Writes number names up to 10,000	1.5.2. Writes number names up to 1,00,00,000 (One crore)
	1.1.3. Identifies zero as the number representing nothing or the absence of objects in a collection	1.2.3. Demonstrates understanding of ordinal numbers 1-10 (e.g. 1st, 2nd, 3rd)	1.3.3. Demonstrates understanding of place value of 3-digit numbers by expanding numbers between 100-999 into 100's, 10's and ones, and by expressing the expanded form as a 3-digit number	1.4.3. Demonstrates understanding of place value of 4-digit numbers by expanding numbers between 1,000-9,999 into 1,000's, 100's, 10's and ones and by expressing the expanded form as a 4-digit number	1.5.3. Demonstrates understanding of place value of 5 and 6-digit numbers by expanding numbers between 10,000-9,99,999 into 1,00,000's, 10,000's, 1,000's, 100's, 10's and ones, and by expressing the expanded form as a 5 or 6-digit number

* Competencies marked with an (*) indicate that these competencies should also be evaluated using concrete objects, pictures or relevant mathematical apparatus.

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
	1.1.4. Demonstrates understanding of place value by expanding numbers 10-20 into tens and ones, and by expressing the expanded form as a two-digit number	1.2.4. Finds the number of objects in a given set by counting in 2's, 5's, or 10's (set of objects not exceedig 100)	1.3.4. States the place value of the digits within a 3-digit numeral	1.4.4. Arranges numbers from 1,000-10,000 in ascending and descending order	1.5.4. Arranges numbers from 10,000-1,00,000 in ascending and descending order
	1.1.5. States the place value of the digits in the numbers 10-20		1.3.5. Arranges numbers from 100-1,000 in ascending and descending order	1.4.5. Identifies the numeral/numerals before, after or between any numeral/ numerals between 1,000-10,000	1.5.5. Identifies the numeral/numerals before, after or between any numeral/numerals between 10,000-1,00,000
	1.1.6. Arranges numbers from 1-100 in ascending and descending order		1.3.6. Identifies the numeral/numerals before, after or between any numeral/numerals between 100-1,000	1.4.6. Compares numbers from 1,000-10,000 using the signs >, <, =	1.5.6. Compares numbers from 10,000-9,99,999 using the signs >, <, =
	1.1.7. Identifies the numeral/numerals before, after or between any numeral/ numerals between 1-100		1.3.7. Compares numbers from 100-1,000 using the signs >, <, =	1.4.7. Demonstrates understanding of multiples and factors of a number	1.5.7. Calculates Highest Common Factor (HCF) of 2 numbers not exceeding 100

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
	1.1.8. Compares numbers from 1-100 using the words 'more than', 'less than', 'the same as', 'greatest', 'least'		1.3.8. Demonstrates understanding of even and odd numbers	1.4.8. Demonstrates understanding of prime numbers up to 50	1.5.8. Calculates Lowest Common Multiple (LCM) of 2 or 3 numbers each of which do not exceed 10
	1.1.9. Writes the numerals from 1-100		1.3.9. Demonstrates understanding of ordinal numbers 11-100		
2. Ability to Add, Subtract, Multiply and Divide Whole Numbers	*2.1.1. Adds numbers 0-18 with sum not exceeding 18	2.2.1. Adds two or three 2-digit numbers without carrying and with carrying and sum not exceeding 99	2.3.1. Adds two or three 3-digit numbers with carrying and sum not exceeding 999	2.4.1. Adds two or three 4-digit numbers with carrying and exceeding 9,999	2.5.1. Adds two to four 5 and 6-digit numbers with sum not exceeding 9,99,999
	2.1.2. Adds two numbers mentally with sum not exceeding 9	2.2.2. Subtracts 2-digit numbers without borrowing and with borrowing	2.3.2. Subtracts 3-digit numbers with borrowing	2.4.2. Subtracts 4-digit numbers with borrowing	2.5.2. Subtracts 5 and 6-digit numbers

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
	*2.1.3. Subtracts numbers from 0-18 to separate smaller number from a larger number and to find the difference between two numbers	2.2.3. Solves one step of daily life problems involving skills 2.2.1 and 2.2.2	2.3.3. Solves 1-2 steps of daily life problems involving skills 2.3.1 and 2.3.2	2.4.3. Solves 1-2 steps of daily life problems involving skills 2.4.1-2.4.2	2.5.3. Multiplies a number by a number up to 3 digits with product not exceeding 9,99,999
	2.1.4. Subtracts mentally one single digit number from another single digit number	2.2.4. Adds two numbers mentally between 0-18 with the sum not exceeding 18	2.3.4. Adds and subtracts mentally two numbers that are whole 100's, where no number in the operation exceeds 1,000	2.4.4. Adds and subtracts mentally two numbers that are whole 1000's, where no number in the operation exceeds 10,000	2.5.4. Divides a 4-digit number by a 2-digit number without and with remainder
	2.1.5. Interprets and writes the symbols +, −, and =	2.2.5. Subtracts numbers mentally (Both numbers not exceeding 18)	2.3.5. Solves one step of daily life problems mentally involving addition and subtraction with no number exceeding 50 and no carrying/borrowing	2.4.5. Understands various terms of multiplication such as multiple, multiplier and product	2.5.5. Solves 1-2 steps of daily life problems involving any 2 of the 4 basic operations of addition, subtraction, multiplication and division using not more than 6-digit numbers at any stage in the operations and using one or more of skills 2.5.1-2.5.4

Areas	Class I	Class II	Class III	Class IV	Class V
	2.1.6. Solves daily life problems involving addition and subtraction skills as in 2.1.1	2.2.6. Solves one step of daily life problems mentally involving addition and subtraction skills as in 2.2.4 and 2.2.5	2.3.6. Adds and subtracts mentally two numbers that are multiples of 10 or 100, between 10-1,100 where one of the numbers is a 2-digit number and where no carrying or borrowing is involved. e.g. 220 + 40, 850-20	2.4.6. Multiplies 2 and 3-digit numbers by a 2-digit number with product not exceeding 9,999	2.5.6. Solves 1-2 steps or daily life problems mentally involving any 2 of the 4 basic operations of addition, subtraction, multiplication and division with sum, product and dividend not exceeding 100 and factors not exceeding 10 where no carrying, borrowing or remainder is involved
	2.1.7. Solves daily life problems mentally involving addition and subtraction skills as in 2.1.2 and 2.1.4	2.2.7. Demonstrates understanding of concept of multiplication as repeated addition with 2, 3, 4, 5 and 10 as factors	2.3.7. Demonstrates understanding of concept of multiplication as repeated addition with 6, 7, 8 and 9 as factors	2.4.7. Understands various terms of division such as divisor, dividend, quotient and remainder	2.5.7. Uses unitary method to solve simple daily life problems
		2.2.8. Interprets and writes the symbol (x) for multiplication	2.3.8. Knows mentally and in writing multiplication tables with 2-10 as factors	2.4.8. Divides a number up to 3 digits by a number not exceeding 10 with borrowing and with remainder	2.5.8. Demonstrates understanding of the meaning of average and is able to compute it

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
		2.2.9. Knows mentally and in writing multiplication tables of 2, 3, 4, 5 and 10	2.3.9. Multiplies 2 and 3-digit numbers with single digit with carrying and product not exceeding 999	2.4.9. Solves 1-2 steps of daily life problems involving multiplication and division using skills 2.4.6, 2.4.8	2.5.9. Finds the average height/score/rainfall/ attendance, etc. from the given data
		2.2.10. Solves one step of daily life problems using multiplication tables of 2, 3, 4, 5 and 10 where no factor exceeds 10	2.3.10. Demonstrates understanding of the concept of division as repeated subtraction	2.4.10. Solves 1-2 steps of daily life problems involving any 2 of 4 basic operations of addition, subtraction, multiplication and division using not more than 4-digit numbers at any stage in the operation, and using one or more skills 2.4.1, 2.4.2, 2.4.6 and 2.4.8	
		2.3.11. Divides a 3-digit number by a single digit number without borrowing and without remainder	2.4.11. Multiplies by 100 mentally where the product does not exceed 10,000		

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
		2.3.12. Solves one step of daily life problems of multiplication and division using skills 2.3.9 and 2.3.11	2.4.12. Solves 1-2 steps of daily life problems mentally involving any 2 of the 4 basic operations of addition, subtraction, multiplication and division with sum, product and dividend not exceeding 100 and factors not exceeding 10 where no carrying, borrowing or remainder is involved		
		2.3.13. Solves one step of daily life problems mentally involving multiplication and division with 1-10 as factors and divisors and products and dividend not exceeding 100	2.4.13. Solves simple problems involving unitary method.		

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
3. Ability to Use and Solve Simple Problems of Daily Life Relating to Units of Money, Length, Mass (Weight), Capacity, Area and Time					
Money	3.1.1. Recognizes coins and currency notes of different denominations	3.2.1. Makes any value up to Re 1 by using varying collections of coins, using real or toy money	3.3.1 Uses real or toy money in currency and coins in examples of 1-step daily transactions with values not exceeding Rs 10	3.4.1. Solves simple money problems with conversion using any 2 of the 4 operations of addition, subtraction, multiplication and division, e.g. shopping accounts (factors not exceeding 10)	3.5.1. Solves simple money problems including profit and loss, as in 3.4.1.
			3.3.2. Solves simple money problems using either addition or subtraction without conversion, e.g. simple shopping accounts	3.4.2. Applies unitary method to buying and selling problems	3.5.2. Interprets and prepares simple bills given the rates and quantity up to 5 items

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
			3.3.3. Solves mentally daily life problems involving paise in multiples of 5 and 10, up to Re 1	3.4.3. Solves mentally 1-step daily life money problems involving either rupees or paise where the sum does not exceed Rs 50 using any of the 4 operations of addition, subtraction, multiplication and division (factors not exceeding 10) without conversion where no carrying, borrowing or remainder is involved	3.5.3. Solves simple problems involving simple interest
			3.3.4. Solves mentally 1-step daily life problems involving whole rupees where the sum does not exceed Rs 50	3.4.4. Solves simple problems of profit and loss	3.5.4. Solves mentally 1-step daily life money problems involving rupees and paise where the sum does not exceed Rs 100, using any of the 4 operations without conversion, carrying, borrowing or remainder and multiplication and division by single digit only

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
Length	3.1.2. Uses non-standard units (such as handspan, human feet, stick, etc.) to measure lengths of objects in immediate environment	3.2.2. Uses non-standard units (such as handspan, human feet, stick, etc.) to measure lengths of objects in immediate environment	3.3.5. Demonstrates understanding of relationship between metres and centimetres	3.4.5. Understands the relationship between kilometres and metres	3.5.5. Solves simple daily life problems relating to standard units of length involving up to 2 of the 4 operations, with conversion
			3.3.6. Adds two lengths of metres and centimetres without conversion	3.4.6. Convert kilometres to metres, metres to centimetres and vice versa	3.5.6. Measures straight lines or curves in objects or short distances in the immediate environment in metres and centimetres
			3.3.7. Finds the difference between two lengths of metres and centimetres without conversion	3.4.7. Solves 1-step simple daily life problems relating to standard units of length involving conversion and only one of the 4 operations and multiplication and division by single digit only	3.5.7. Estimates and compares lengths of familiar objects and short distances not exceeding 5 metres in non-standard and standard units

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
			3.3.8. Estimates lengths of familiar objects and short distances not exceeding 5 metres in non-standard units	3.4.8. Measures lengths of objects or short distances in the immediate environment in metres, centimetres (complete units)	3.5.8. Solves simple 1-step daily life problems mentally involving kilometres and metres or metres and centimetres with no number exceeding 100 and no conversion, carrying or borrowing, or remainder. Multiplication and division by single digit only.
				3.4.9. Estimates and compares lengths of familiar objects and short distances not exceeding 5 metres in non-standard and standard units	
				3.4.10. Solves simple 1-step daily life problems mentally involving kilometres and metres or metres and centimetres with no number exceeding 50 and no conversion, carrying or borrowing, or remainder. Multiplication and division by single digit only	

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
Mass (Weight)	3.1.3. Uses non-standard units of mass (weight) (such as stones, beads, etc.) to weigh objects in immediate environment using a toy scale/pan balance	3.2.3. Uses non-standard units of mass (weight) (such as stones, beads, etc.) to weigh objects in immediate environment using a toy scale/pan balance	3.3.9. Understands the relationship between the standard units of mass (weight), i.e. between kilograms and grams	3.4.11. Converts kilograms into grams and vice versa	3.5.9. Solves simple daily life problems involving up to 2 of the 4 operations relating to standard units of weight, with conversion
			3.3.10. Identifies the different block measures of mass such as 50 grams, 100 grams, 200 grams, 500 grams, 1 kilogram and 2 kilograms	3.4.12. Solves simple 1-step daily life problems related to mass (weight) involving only one of the 4 operations, including conversion. Multiplication and division by single digit only	3.5.10. Solves simple 1-step daily life problems mentally involving litres and millilitres with no number exceeding 100 and no conversion, carrying or borrowing or remainder. Multiplication and division by single digit only
			3.3.11. Adds the mass (weight) of 2 or 3 objects when the mass of each object is expressed in kilograms and grams without conversion	3.4.13. Solves simple 1-step daily life problems mentally involving kilograms and grams with no number exceeding 50 and no conversion, carrying or borrowing or remainder. Multiplication and division by single digit only	

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
			3.3.12. Finds the difference in the mass of two objects when the mass of each object is expressed in kilograms and grams without conversion.		
Capacity	3.1.4. Uses non-standard units (such as cup, tumbler, bottle, etc.) to measure capacity	3.2.4. Uses no-standard units (such as cup, tumbler, bottle, etc.) to measure capacity.	3.3.13. Understands the relationship between standard units of measuring capacity (i.e. litre and millilitres)	3.4.14. Converts litres to millilitres and vice versa.	3.5.11. Solves simple daily life problems involving up to 2 of the 4 operations relating to standard units of capacity with conversion
			3.3.14. Adds two or three quantities of liquid, and writes the sum expressed in litres and millilitres without conversion.	3.4.15. Solves simple 1-step daily life problems related to capacity using any one of the 4 operations and involving conversion. Multiplication and division by single digit only.	3.5.12. Estimates and compares small units of capacity in terms of non-standard measures such as cups, matchboxes, small bottles, etc.

Areas	Class I	Class II	Class III	Class IV	Class V
			3.3.15. Finds the difference between two quantities of liquids when both are expressed in litres and millilitres without conversion	3.4.16. Estimates and compares small units of capacity in terms of non-standard measures such as cups, match-boxes, small bottles, etc.	3.5.13. Solves simple 1-step daily life problems mentally involving litres and millilitres with no number exceeding 100 and no conversion, carrying or borrowing or remainder. Multiplication and division by single digit only
			3.3.16. Estimates small units of capacity in terms of non-standard measures such as cups, match-boxes, bottles, etc.	3.4.17. Solves simple 1-step daily life problems mentally involving litres and millilitres with no number exceeding 50 and no conversion, carrying or borrowing or remainder. Multiplication and division by single digit only.	
Area			3.3.17. Calculates surface area of rectangular regions using non-standard units such as bricks, tiles, match-boxes, etc.	3.4.18. Measures in non-standard and standard units the perimeters of any surfaces or objects of rectangular,	3.5.14. Solves simple daily life problems relating to area and perimeter of a rectangle using the respective formulae

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
				square or triangular shape in the immediate environment (e.g. classroom, notebook, etc.)	
			3.3.18. Estimates small units of areas in terms of square and rectangular objects such as match-boxes, bricks, tiles (non-standard units)	3.4.19. Applies the formula to calculate the area of rectangular shapes in the immediate environment such as slates, notebooks, classroom, floor, playground, etc. in square centimetres and square metres	3.5.15. Estimates and compares in non-standard and standard units small units of areas in the immediate environment such as match-boxes, bricks, slates, notebooks, classrooms, playgrounds
				3.4.20. Estimates and compares in standard and non-standard units small units of surface areas in the immediate environment such as match-boxes, boxes, bricks, slates, notebooks, classrooms, playgrounds, etc.	

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
Time	3.1.5. Names days of the week in sequence	3.2.5. Knows the relationship of days to weeks, weeks to months and months to year	3.3.19. Reads clocks by hour, 1/2 hour, 1/4 hour and five minute intervals	3.4.21. Interprets a calendar	3.5.16. Calculates the duration of an activity/event across a.m. and p.m.
		3.2.6. Knows the names of months in sequence	3.3.20. Adds hours and minutes without conversion	3.4.22. Reads a clock in hours and minutes	3.5.17. Solves simple daily life problems relating to time, involving weeks, days and hours-minutes
			3.3.21. Interprets a calendar	3.4.23. Converts hours into minutes and vice versa	
				3.4.24. Adds hours and minutes with conversion	
				3.4.25. Calculates the duration of an activity/ event within a.m. and p.m.	
4. Ability to use fractions, decimals and percentage					

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
Fractions			4.3.1. Demonstrates orally understanding of fractions as parts of regions (spatial) using concrete objects/ diagrams/paper folding	4.4.1. Demonstrates understanding of the meaning of proper fractions as parts of regions with the denominators not exceeding 20	4.5.1. Arranges simple proper fractions in ascending or descending sequence with denominators not exceeding 10
			4.3.2. Demonstrates understanding of the meaning of proper fractional numbers as parts of regions with the numerator and denominator not exceeding 10	4.4.2. Demonstrates understanding of the meaning of proper fractional numbers as part of a set/ collection with denominator not exceeding 10, and collection up to 100 (e.g. $\frac{1}{7}$ of 49)	4.5.2. Reduces simple fractions to lowest terms
				4.4.3. Demonstrates understanding of equivalent fractions of a given fraction (e.g. 1/2 = 2/4 = 4/8)	4.5.3. Adds and subtracts fractions and mixed numbers with denominator not exceeding 10
				4.4.4. Arranges in ascending and descending sequence proper	4.5.4. Solves daily life problems involving comparing, addition and subtraction of

Areas	Class I	Class II	Class III	Class IV	Class V
				fractions with same numerators or same denominators	fractions and mixed numbers with denominator not exceeding 10
				4.4.5. Converts mixed numbers to improper fractions and vice versa. Denominator not exceeding 20	4.5.5. Adds and subtracts mentally in daily life problems some combinations of fractions which occur frequently $\left(\text{e.g. } \frac{1}{2}+\frac{1}{4}=\frac{3}{4}\right)$
				4.4.6. Adds and subtracts simple proper fractions with same denominators	4.5.6. Multiplies and divides 2 fractions with denominators up to 10 and express the answer in its lowest terms
				4.4.7. Solves daily life problems involving comparing, addition and subtraction of fractions with same denominator	

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
Decimals				4.4.8. Converts fractions and mixed numbers to decimals and decimals to fractions and mixed numbers, with value up to 2 decimals places	4.5.7. Adds and subtracts decimals up to 3 decimal places
					4.5.8. Expresses units of length, weight and capacity in decimals up to 3 decimal places
					4.5.9. Multiplies and divides a decimal number up to 3 decimal places by a single digit number. Product and dividend not exceeding 3 decimal places.
					4.5.10. Solves daily life problems involving length, weight, capacity, etc. involving comparing, addition, subtraction, multiplication and division of decimals up to 3 places

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
					4.5.11. Converts fractions and decimals into percentage and percentage into fraction in lowest terms and decimal
Percentage					4.5.12. Finds required percentage of a given number or measure
					4.5.13. Solves simple daily life problems involving application of percentage
					4.5.14. Converts mentally frequently used percentages into fractions and vice versa (e.g. 50% = $\frac{1}{2}$, $\frac{1}{4}$ = 25%, etc.)
5. Understanding of geometrical shapes and spatial relationship	5.1.1. Recognizes and names the four basic shapes — circle, triangle, rectangle and square	5.2.1. Names objects in the environment which have only plane surfaces, only curved surfaces, and objects which have both	5.3.1. Recognizes and classifies various solids in the environment with their geometrical names (e.g. cuboid, sphere, cube, cone, cylinder)	5.4.1. Measures and draws line segments of specific lengths with the help of a ruler	5.5.1. Draws triangle, rectangle, square with the help of ruler, etc.

Areas	Class I	Class II	Class III	Class IV	Class V
	5.1.2. Draws freehand circle, triangle, rectangle and square to demonstrate understanding of the basic properties of the four shapes	5.2.2. Draws plain shapes, e.g. square, rectangle, triangle and circle using objects which have straight or curved edges	5.3.2. Draws plane shapes, e.g. square, rectangle, triangle and circle using objects which have straight or curved edges	5.4.2. Classifies angles as right angle, obtuse angle and acute angle	5.5.2. Draws a circle of a given radius with the use of compass and ruler
	5.1.3. Recognizes and classifies various solids in the environment on the basis of their shapes without necessarily mentioning their geometrical names		5.3.3. States properties of triangle, rectangle and square	5.4.3. Recognizes right angles, obtuse angles in the environment and in pictures of the objects	5.5.3 knows various terms related to a circle, and their relationship
				5.4.4. Draws angles of different measures with the help of a protractor	5.5.4 Identifies whether a pair of simple figures are reflections of each other or not, and can draw the line of reflection if it exists
				5.4.5. Classifies triangles on the basis of angles and sides — isosceles, scalene, equilateral	5.5.5 Identifies in two simple figures whether one can be rotated or turned to look like the other
				5.4.6. Identifies shapes which are symmetrical and asymmetrical	

CHAPTER 5

Minimum Levels of Learning in Environmental Studies

Introduction

1. Environment is generally taken to consist of two main aspects: natural and human, i.e. man-made or social. This division is often reflected in the curriculum of Environmental Studies (EVS) where, traditionally, these have been labelled as Parts I and II separately, or Social Studies and Science, respectively. In fact, the total environment should be viewed integratively as the product of the interaction among the man, the natural environment and the social environment.

2. The proposed curriculum plan tries to include all these three dynamic and mutually interactive elements. It has been built around 10 major competencies; The first one is concerned with one's well-being in the context of natural and social environment. The next five deal with the social aspects such as socio-civic environment, the world of work, spatial relationship between man and his natural environment, man's past-present relationship; and some common problems concerning environmental interaction. The last four major competencies relate to selected components of natural environment pressing on the scientific aspect besides the personal and social ones, and include the elements of health, living things, non-living things, and the earth and the sky.

3. The ten major competencies aimed at the cognitive, affective and psychomotor domains of development together with the content elements associated with them are enumerated below:

The pupil

(i) acquires awareness about one's well-being in the context of social and natural environment.

(ii) Explores important aspects of one's socio-civic environment and comprehends their working.

(iii) Knows about various people at work and appreciates the importance about the 'world of work'.

(iv) Understands and interprets the spatial and interactive relationship between man and his environment.

(v) begins to see the relationship between man's past and present; and to hold the past in its proper perspective.

(vi) Senses common but simple and easily observable socio-economic situations and problems, analyses them and seeks possible solutions at his level of experience.

(vii) Understands the factors contributing to the preservation of good health.

(viii) Develops skill in gathering and classifying information about living things from one's environment, and drawing simple inferences.

(ix) Observes and examines some common characteristics of non-living things.

(x) Observes simple phenomena on the earth and in the sky and draws inferences.

4. It may be pointed out that the proposed scheme of MLLs avoids drawing any hard and fast dividing line between various components of Environmental Studies and expects them to be treated in a correlated manner. In the ultimate analysis, every child has to conduct himself/herself as a socially responsible citizen as he/she grows, has to become aware of environmental conditions and the need to protecting it, and has to broaden his/her socio-economic and scientific outlook with the attainment of greater maturity. It is for the achievement of such broad life goals that the competencies stated above have to be mastered during the initial stage of education.

5. In order to develop these major competencies grade by grade, they have been delineated into specific sub-competencies anchoring them with relevant content units, and have been presented as a flow chart in a sequential and interconnected manner. The horizontal relationship of different competencies within a grade and vertical articulation established across grades have to be kept in view in the process of teaching as well as evaluation. Therefore, a particular numbering system is followed in presenting these competencies including pertinent content elements. For example, the sub-competency numbered 5.4.2 means that it belongs to the fifth major competency, for Class IV, and second competency in the study of Progress of Man from Early Times to the Present Age (see Statement of MLLs).

6. Each competency or sub-competency represents a specific curricular objective describing expected learning outcomes. Keeping these expected outcomes of learning in view, effective and attractive procedures of teaching and learning should be followed. The competencies under EVS are such that the techniques of teaching can be conveniently made activity-based. The child should, therefore, be given ample opportunities both individually and in groups, as also within the classroom and outside to observe, explore, analyse, interpret and appreciate the natural and social environment of which he/she is an integral part. The textbook and other aids should be used for reinforcement of these processes.

7. Evaluation of learning outcomes should be integrated with the process of teaching and children's activities on a continuous basis. In the first two classes it should be largely observational and oral. Written tests may be

gradually introduced from Class III but should be supplemented by other techniques. The capacity of understanding and application of knowledge acquired rather than rote memorization should be particularly stressed in formal as well as informal examinations.

Statement of MLLs in Environmental Studies

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
1. The pupil acquires awareness about one's well-being in the context of social and natural environment	1.1. Our body and its cleanliness	1.2. Our food and shelter.	1.3. Rules of safety and orderly behaviour	1.4. Precautions against common accidents	1.5. Care against persons of bad habits and bad character.
	1.1.1. Identifies the main parts of the body	1.2.1. Understands the need of food for health	1.3.1 Appreciates the need for orderly behaviour in home, school and public places	1.4.1 Identifies common situations leading to accident in his environment	1.5.1 Knows about common crimes in his locality, e.g., theft, decoity, violence and trespass
	1.1.2. Understands the importance of keeping them clean	1.2.2. Sees relationship between unclean food and water, and diseases	1.3.2. States in queue and waits for his turn	1.4.2. Sees relationships between accidents and lack of precaution	1.5.2. Sees relationship between crimes and bad habits and bad behaviour, e.g. alcoholism, bullying, lack of consideration for others, etc.
	1.1.3. Recognizes the need of clothes and seasonal variation in them (wherever applies)	1.2.3. Appreciates why the house is an essential need.	1.3.3. Interprets important road symbols (as applicable)	1.4.3 Knows some basic measures to be taken following an accident	1.5.3. Suggests possible safeguards, as also measures to prevent crimes

Areas	Class I	Class II	Class III	Class IV	Class V
	1.1.4 Practises personal cleanliness including toilet habits	1.2.4. Shares activities to keep the house and surroundings neat and tidy	1.3.4. Observes important rules of road (as applicable)		
	1.1.5. Observes how animals and birds keep their bodies clean	1.2.5. Observes and compares various kinds of shelters including those of animals, birds and insects			
2. The pupil explores important aspects of one's socio-civic environment and comprehends their working	2.1. Our family and neighbours	2.2. Our neighbourhood (locality)	2.3. Civic amenities that make our life comfortable	2.4. How we manage our local civic affairs	2.5. How we govern ourselves
	2.1.1. Indentifies relationship of the different members of the family with himself and among themselves	2.2.1. Identifies important public places such as the school, *panchayatghar*, etc. in the locality and knows their importance	2.3.1. Enquires about the functions of such public institutions as hospital, police station, post office, *panchayat*/municipality, court and bank	2.4.1. Finds out how the *panchayat*/municipality is useful for us	2.5.1. Understands broad relationship between the Central, State and local-self governments

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
	2.1.2. Shows due courtesy to elders, peers, etc. in the family and among the relatives and neighbours	2.2.2. Realizes the importance of going to the school, and attends it regularly and in time	2.3.2. Knows about the importance of some district level functionaries, e.g. D.M., S.P., etc.	2.4.2. Enquires how the *panchayat*/municipality is run	2.5.2. Describes simple facts about the Union (central) and State Level governments
				2.4.3. Explains why the *panchayat* and municipality are called local-self governments	2.5.3. Interprets the use of terms like 'democracy' and 'union' for our country as unique features
					2.5.4. Realizes the importance of the right to vote in a democracy
3. The pupil knows about various people at work and appreciates the importance of the 'world of work	3.1. Parents and other members of family at work	3.2. Occupations in the neighbourhood	3.3. Life and activities of some people at work: food producing	3.4. Manufacturing Food producing articles	3.5. Other important workers: food producing

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
	3.1.1. Observes various members of family at work in home	3.2.1. Observes and lists occupations carried on in the locality	3.3.1. Lists the occupations engaged in producing various articles of daily need	3.4.1. Recognizes the importance of manufacturing articles	3.5.1. Realizes the importance of work of those engaged in transport and communication, e.g. railways, construction of roads and bridge, working of radio, television, etc.
	3.1.2. Knows about occupations of parents of family for earning livelihood	3.2.2. Finds out their usefulness	3.3.2. Identifies those who produce food stuffs, e.g. farmer, dairyman, fisherman and herdsman	3.4.2. Identifies some occupations related to them	3.5.2. Understands the importance of trade and commerce
	3.1.3. Shares information with peers about occupations of the parents	3.2.3. Appreciates the variety in occupations and its need	3.3.3. Describes their main activities and their ways of life	3.4.3 Gathers information about the activities and life of a few such workers (selected examples)	3.5.3. Realizes the importance of the work of a soldier, policeman, teacher, etc. and compares their work with that of a farmer and a manufacturer.
		3.2.4. Realizes the importance of work in life		3.4.4. Compares the work of a farmer with that of a craftsman	3.5.4. Appreciates the existence of increasingly large variety in occupations and interdependence among them (Extension of 3.2.3)

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
4. The pupil understands and interprets the spatial and interactive relationship between man and his environment	4.1. Our locality (village/*Mohalla*).	4.2. Our neighbourhood	4.3 Our district	4.4. Our State/UT and Our Country	4.5. Our Country and and the World
	4.1.1. Identifies some important local land features, e.g. river, pond, ridge, knoll, etc.	4.2.1. Uses sunrise and sunset to find out directions	4.3.1. Draws a sketch of the classroom and a freehand sketch map of school and locality or part of it	4.4.1. Knows the names and location of States and UTs of India.	4.5.1. Identifies major land and water masses, poles and equator on the globe
	4.1.2. Recognizes some common animals, birds and insects	4.2.2. Relates the nature of weather with seasons, and seasons with human activities, plants, birds, etc.	4.3.2. Identifies direction on a map/ sketch map	4.4.2. Locates his State/UT in reference to adjacent States and UTs, international boundary, coastline, etc. (as applicable)	4.5.2. Locates India in Asia and with reference to to Indian Ocean and neighbouring countries
	4.1.3. Estimates distances in the locality in terms of very near, near, far, beyond and before	4.2.3. Gathers information about various uses of land features of locality by man	4.3.3. Locates the district in the State and the State in India	4.4.3. Describes main physical features and climatic conditions of the State	4.5.3. Identifies distribution of main physical features on map and describes them

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
		4.2.4. Reads information from a given sketch map of the locality	4.3.4. Knows about important physical features, climate, vegetation, crops and industries of the district	4.4.4. Knows the distribution of main natural resources of the State and their importance for the country, if any	4.5.4. Describes main characteristics of Indian climates
		4.2.5. Recognizes some common trees, birds, crops, etc. of the locality	4.3.5. Traces the map of the district and shows physical features, important places and routes	4.4.5. Understands distribution of main crops (in the context of climate and terrain), important occupations and location of industries	4.5.5. Describes and locates important natural resources of India.
			4.3.5. Describes life of people of the district (a few selected examples)	4.4.6. Describes the life of typical people in the State (a few selected examples)	4.5.6. Understands the distridistribution of main crops and location of main industries in India.
				4.4.7. knows importance and location of chief places and routes of the State	4.57 knows the importance and location of significant places and routes in India
				4.4.8. knows how to use an atlas.	4.5.8. Describes life of people in various important parts of India (a few examples to be selected)

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
				4.4.9. Undertakes necessary map-work using symbols for showing distributions	4.5.9. Knows about important items of export and import of India alongwith chief land, sea and air-routes connecting India with neighbouring and other important countries of the world
5. The pupil begins to see relationship between man's past and present and to hold the past in proper perspective.	5.1 Local Festivals	5.2. National Festivals and Other Celebrations	5.3 Our Early Forefathers	5.4. Progress of Man from Early Times to the Present Age	5.5. Our Struggle for Freedom
	5.1.1. Knows simple facts about the traditions behind local fairs and festivals	5.2.1. Knows about the importance of national festivals	5.3.1. Describes the life of the early man	5.4.1. Notices the gradual improvement of tools and techniques of man	5.5.1. Knows how we lost freedom when the British began to rule over us from abroad (England) and how we won it back

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
	5.1.2. Shares experience with peers about fairs visited and festivals celebrated	5.2.2. Participates and understands the similarities and differences in celebrating national festivals and other celebrations.	5.3.2. Understands why his life was very different from ours	5.4.2. Sees relationship between these developments and rise of civilization (selected examples from India)	5.5.2. Realizes that people in various parts of the country took part in the freedom struggle.
		5.2.3. Knows about the national flag	5.3.3. Understands the mode of his life and circumstances in which he lived	5.4.3. Appreciates the role of science and technology towards modern development	5.5.3. Appreciates the part played by Gandhiji in freedom struggle along with others (some to be selected from the state concerned)
		5.2.4. Sings national anthem	5.3.4. Knows simple facts about the life of people in some important parts of India, 5000 years ago	5.4.4. Knows about important aspects of cultural life, e.g. music, art and sculpture and their importance for happiness of man. (selected examples from India)	5.5.4. Infers why freedom of the country is invaluable and needs to be protected at all costs by all of us

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
6. The pupil senses commoon but simple and easily observable socio-economic situations and problems, analyses them and seeks possible solutions at his level of experience			6.3. Small family, happy family (small family norms)	6.4. National unity	6.5. Our Development in a fast changing world
			6.3.1. Observes the difficulties faced by large families living in small houses	6.4.1. Appreciates the need of national unity for protecting our freedom and making progress	6.5.1. Knows about some fast developments in the world today, such as in transport, communication, medicine, etc. and the need of our country to keep pace with these
			6.3.2. Observes overcrowding in hospitals, trains, buses, etc. (as applicable) country enriches	6.4.2. Understands how variety in resources, environment and life of the people in our country enriches our unity	6.5.2. Realizes the need of peace, hard work and cooperation among all people and all regions for a quick development

Areas	Class I	Class II	Class III	Class IV	Class V
			6.3.3. Compares the situation regarding over-crowding today with that of earlier days by talking to elders in the locality	6.4.3. Knows important facts about Indian culture and contribution of different regions to its richness	6.5.3. Understands that fast increase in the population of our country is a serious obstacle in our development
				6.4.4. Knows important facts about our national symbols and understands their significance	6.5.4. Knows about population census taken every decade
					6.5.5. Finds out increase in population according to each census since Independence and understands its implications
7. The pupil understands the factors contributing to the preservation of good health			7.3. Functions and care of different parts of body	7.4. Nutrition, pollution and cleanliness	7.5. Prevention of diseases and keeping fitness

Areas	Class I	Class II	Class III	Class IV	Class V
			7.3.1. Understands important functions of human body, such as digestion, respiration, blood circulation, etc.	7.4.1. Classifies food stuffs according to nutritive functions and understands the need of balanced diet	7.5.1. Knows about major sources of diseases
			7.3.2. Knows how to take proper care of such parts of the body as eyes, hair and teeth	7.4.2. Knows how food and drinking water get contaminated (Extension of 10.3.14)	7.5.2. Understands the usefulness of vaccination to prevent communicable diseases
				7.4.3. Conducts simple experiments to purify drinking water	7.5.3. Suggests ways of collecting and disposing of garbage
				7.4.4. Relates unhygienic conditions with the spread of diseases	7.5.4. Applies simple first-aid skills
					7.5.5. Reads thermometer to know body temperature
					7.5.6. Participates in child-to-child programme to save life of ailing infants, e.g. from diarrhoea

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
8. The pupil develops skill in gathering and classifying information about living things from one's environment and drawing simple inferences			8.3. Living things: their characteristics and classification	8.4. Living things: their usefulness to man	8.5 Living things and environment
			8.3.1. Observes local surrounding and classifies things into (i) living and non-living, (ii) natural and man-made	8.4.1. Identifies some important ways of using plants and animals	8.5.1. Gives examples that animals and plants adapts themselves to environment
			8.3.2. Understand similarities and differences between animals and plants	8.4.2. Identifies some harmful insects and weeds	8.5.2. Visualizes present and possible future harmful effects from diminishing forest cover, soil erosion and pollution (extension of 10.4.10)

Areas	Class I	Class II	Class III	Class IV	Class V
			8.3.3. Identifies main parts of a plant	8.4.3. Examines the need of caring and protecting animals and plants, and describes simple ways of doing so	8.5.3. Knows the present schemes (a few) to increase and improve forest cover, cleaning rivers, tanks and such others, e.g. the Ganga
			8.3.4. Classifies common plants on the basis of size, life span and seasonality	8.4.4. Names the national bird, animal and flower (also state animal, birds, etc. as applicable)	
			8.3.5. Observes food habits of different animals and birds	8.4.5. Takes part in tree-plantation progammes of the locatiy and appreciates their importance	
9. The pupil observes and examines some common characteristics of non-living things			9.3. Common materials and their properties	9.4. Materials (matter) and their properties	9.5. Energy and work

Areas	Class I	Class II	Class III	Class IV	Class V
			9.3.1. Identifies common materials on the basis of some easily observable properties, e.g. colour, texture and hardness	9.4.1. Knows the three states of matter—solid, liquid and gaseous	9.5.1. Knows important sources of energy used in daily life
			9.3.2. Classifies given materials according to these properties	9.4.2. Observes the three states of matter in respect of water	9.5.2. Understands how energy helps in doing a work
				9.4.3. Generalizes about inter-changeability of these stages	
10. The pupil observes simple phenomena on the earth and in the sky and draws inferences			10.3. The earth and the sun	10.4. The earth and the sky	10.5. Man, science and environment
			10.3.1. Earth-sun relation and consequences	10.4.1. Heavenly bodies	10.5.1. Appreciates the importance of science in our daily life

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
			10.3.2. Describes the shape of the earth (evidence of photograph)	10.4.2. Knows difference between sun, earth and moon (simple observable) facts)	
			10.3.3. Relates occurrence of day and night to the rotation of the earth	10.4.3. Recognizes pole star and Great Bear (*Saptrishi*) and uses them for finding direction at night	
			10.3.4. Observes differences in the duration of day-light over the year	10.4.4. Observes phases of the moon	
			10.3.5. Generalizes about the occurrence of seasons		
			10.3.6. Observes consequences of the occurrence of seasons (some instances)		
			10.3.7. Air in our life	10.4.5.Weather phenomena	10.5.1. Describes some outstanding achievements of science (discoveries and inventions)

Areas	Class I	Class II	Class III	Class IV	Class V
			10.3.8. Explains the usefulness of air	10.4.6.Knows how air and weather are related (certain weather phenomena)	
			10.3.9. Knows how air gets polluted	10.4.7. Knows about different forms of water affecting weather, e.g.humidity, fog, cloud, hail and snow	
				10.4.8. Observes various weather phenomena and records them with pictographs	
			10.3.10. Water in our life	10.4.9. Soils in our life	10.5.2. Knows about dangers from the misuse of scientific knowledge, e.g. in war
			10.3.11. Describes different uses of water	10.4.10. Knows about usefulness of soils	
			10.3.12. Knows about different sources of water	10.4.11. Classifies soils of the locality according to sizes of its particles and fertility	
			10.3.13. Locates various sources of water in the locality	10.4.12. Finds out how soil is kept fertile	

Areas	*Class I*	*Class II*	*Class III*	*Class IV*	*Class V*
			10.3.14. Finds out how water gets polluted	10.4.13. Realizes the need of protecting soils from erosion	
					10.5.3. Realizes the need of scientific ways of using environment and natural resources including conservation, e.g. soils, minerals, water and forests (extension of 10.4.13 and 8.52)

CHAPTER 6

Non-Cognitive Areas of Learning

1. Introduction

1.1 All-round development of the personality is the ultimate goal of education and, therefore, the learning experiences provided in the school should contribute towards the achievement of this end. Accordingly, the expected outcomes of learning cannot be limited only to the cognitive domain; it is necessary to delineate learning outcomes expected in the affective and the psycho-motor domains also. In contrast to cognitive aspects, non-cognitive aspects cannot be specified as tangible terminal behaviours, since they comprise elements of personality which manifest themselves in interest, attitudes, personal and social behaviour and value systems. That these form integral part of the set of outcomes expected to be acquired every individual completing the basic education programme is well accepted. It is also recognized that unlike learning outcomes in the cognitive domain, those in the non-cognitive domain, particularly the affective characteristics, cannot be specified in terms of minimum levels. Nevertheless, the need to imbibe certain basic values as part of the process of growing and learning at the primary level of education cannot be questioned. In fact, primary level education provides an ideal setting for this purpose as children at this level are at a plastic age and the experience provided to them at this stage can have a more lasting impact in moulding their personality.

1.2 Before embarking on the specification of non-cognitive aspects of human personality which every child should be facilitated to acquire through schooling, it is necessary to clarify two points. First, the exercise carried out here is confined only to the affective domain, and the psycho-motor domain has consciously been kept out of the purview. It is considered that specification of psycho-motor abilities are closely linked with such curricular components as work experience and physical education, and demands more elaborate deliberations and independent treatment. Secondly, the affective characteristics discussed in this report do not constitute a comprehensive list of all possible learning outcomes in the affective domain. This delimitation is deliberate. The qualities which are explicitly mentioned here are only indicative of the areas which require every school to make conscious efforts for organizing relevant learning experiences. They suggest the essential aspects of personality development which need to be consciously pursued as part of all educational programmes, formal as well as non-formal. It is

3. Development of Specified Qualities

3.1 Development of specific cognitive capabilities can largely be seen in correspondence with particular subjects of study in the school curriculum. But this cannot be applied with regard to development of qualities in the non-cognitive domain. Objectives in the non-cognitive domain do not lend themselves to be specifically attached to any particular area or subject of learning; rather they are related directly or indirectly to every learning experience provided in the school. Also, while the school will occupy a place of prime importance in developing these qualities, family and community will continue to play significant roles in helping the children internalize these qualities and making them a part of their personal life style. This makes the task of the school with respect to non-cognitive domain a complex and difficult one. Some suggestions are placed here regarding the role to be played by the school, and the parents and community in facilitating the children to acquire the key qualities when they undergo primary schooling.

3.2 Role of the School

The school is the place where children are introduced to acting with understanding, where behaviour and knowledge are integrated and reflected in their actions. It is the school which in course of time moulds their attitudes, interest, likes and dislikes towards various objects, individuals, issues and problems they are likely to face in their life. Thus, the characteristics of the child passing out of a school is moulded by the kind of curricular inputs prescribed and the way they are transacted in the schools. Needless to say that the schools have to make a conscious effort to organize the learning experiences in such a way that the children acquire desirable cognitive and non-cognitive characteristics in a balanced fashion. As is often pointed out, cognitive objectives have come to dominate the activities in our schools, invariably at the cost of non-cognitive objectives. It is essential that concerted and conscious efforts are made to organize such learning experiences that develop in the children at least the minimum set of outcomes in the non-cognitive domain.

With respect to the specific role to be played by the school in the process of developing the non-cognitive characteristics four important aspects need to be highlighted.

(i) School organization: The qualities of punctuality, cleanliness, sense of service, cooperation and so on are, to a considerable extent, absorbed by the students in an informal manner from the immediate environment provided in the school. Therefore, it is essential that these factors are effectively reflected in the way the various activities and the physical setting of the school are organized and maintained. For instance, if the school surroundings are kept unclean, or the school activities are organized with a gender bias, it is most unlikely that children develop values of cleanliness and equality of sexes in their own lives. Thus, utmost attention is to be paid for designing the organizational structure, physical setting and learning processes in the school

so that 'school' as a whole becomes a powerful instrument facilitating the inculcation of various qualities in the non-cognitive domain.

(ii) Teacher: It is a well-established fact that a major means through which affective qualities are acquired by children is 'observation and imitation' of adult behaviour. Teacher, willy-nilly, is a model that students in the early stage of education tend to follow and, therefore, every teacher bears a great responsibility in his or her personal presentation and external manifestations of attitudes, work habits and styles of living. Teacher should not be seen only as a transmitter of knowledge and skill but also as a trend-setter for the youngsters through personal behaviour inside and outside the classroom.

(iii) Curricular inputs: Even though, to a great extent, non-cognitive characteristics in the affective domain are caught rather than taught', learning experiences in different subject areas have a significant role in shaping the attitudes and interests of the children. It is necessary to have great care and caution in selecting appropriate curricular inputs and properly transacting them in the classroom. For instance, wrongly chosen inputs in language lessons may develop the requisite cognitive abilities but instill undesirable linguistic, regional or racial disposition in the children. In appropriate choice and inept treatment of social studies content may, instead of developing a sense of national identity, lead to divisive thinking in the children. Similarly, right kind of attitude towards environment and personal hygiene are more likely to develop when supported by a proper knowledge base. Thus, curricular experiences are to be selected with adequate attention to their potential for developing not only the cognitive abilities but also various non-cognitive characteristics in the children.

(iv) Physical education, work experience and art education: While the prescribed curricular activities in scholastic subject areas such as language, mathematics, environmental studies may have the potential to develop outcomes in the non-cognitive domain, the emphasis in these is more likely to be on the cognitive outcomes. In contrast, certain areas of school activities such as physical education, work experience, and art education offer more flexibility, freedom of organization and opportunities for natural and creative expression and thus hold greater potential for moulding outcomes in the non-cognitive domain. These areas provide the children with opportunities to more freely explore, experience, and interact with their physical and social surroundings and help them realize the values of natural respect and cooperation, dignity of labour, sense of achievement and identity, and so on. Unfortunately, with increasing curricular load in scholastic subjects coupled with book-centred and examination-oriented teaching, schools have been paying scant attention to learning experiences in these areas. It is necessary to reverse this trend and ensure that these areas are given their legitimate place in the total scheme of activities in the school.

(v) Co-curricular activities: Apart from the various prescribed curricular activities, every educational programme at the first level should have adequate scope for organizing several co-curricular activities and experiences. These

activities provide ample opportunity for inculcating various personal and social characteristics in a free and natural context without the constraints of transacting prescribed curricular inputs. It is unfortunate that the potential of co-curricular activities for achieving all-round development of the personality of the children at the primary stage is given very little importance.

3.3 Role of Parents and Community

As has already been pointed out, learning outcomes in the affective domain cannot be directly related to any particular set of curricular experiences provided through a formal process. Acquisition of these qualities continually take place through informal experiences inside as well as outside the school. The role of parents at home and the community in this process of informal learning is significant. In an ideal situation, the home, the community and the school ought to play a complementary and mutually reinforcing role. But this does not always happen in actual practice. It is not unusual to find parents and community members also equating schooling with cognitive learning with least concern for a balanced personality development of the children. Further, it would be wrong to expect the school to accomplish more than what it can, particularly with respect to development of non-cognitive outcomes. There is no alternative but to view the task as a joint responsibility of school, home and community and it should be our endeavour to facilitate greater interaction among them towards this purpose.

The school can seek active cooperation of parents and the community in promoting this aspect of learning. For instance, Parent-Teacher Associations can play an important role in this regard. Periodic interaction among parents, teachers and educational administrators of the area can go a long way in setting the tone of the educational programmes to give due emphasis to non-cognitive aspects of learning. The efforts have to be multi-pronged which should reinforce the efforts of the school in developing an ethos where a balanced emphasis on all aspects of learning replaces the current practice of over-emphasizing cognitive outcomes.

4. Assessment of Identified Qualities

4.1 When conscious efforts are made by the school to inculcate certain qualities, it also becomes necessary to evaluate the students and ensure that the students are actually acquiring these qualities. But this is a complex task and poses a number of questions which cannot be answered with any finality. The school and in particular, the teachers should be adequately made aware of these problems and equipped to tackle them tactfully.

4.2 Unlike the cognitive outcomes, affective qualities do not lend themselves to be effectively assessed through paper-pencil tests. The teachers will have to depend greatly on personal observation of student behaviour and infer about the satisfactory development of the qualities. Teachers need to be properly oriented to carry out such observations. A related problem is that non-cognitive outcomes are not as tangible as cognitive outcomes are and they are

not to be measured with precision indicating the amount of the quality possessed by the children. This makes the process of assessing the non-cognitive outcomes essentially judicious and to some extent even subjective. This lays a high premium on the capability of the evaluators that the evaluation of students is not influenced by their own personal preferences and prejudices. Thirdly, non-cognitive outcomes can at no stage be considered as fully developed and, therefore, they cannot be referred to as terminal outcomes at any point. They have always to be seen in terms of 'degree of satisfaction' by the evaluator with respect to the manifestation of different qualities in the behaviour of the students. In a way, non-cognitive aspects of learning will perpetually remain as part of a process of development and change in the students' personality rather than being the final product of specific inputs and processes. Fourthly, the overt behaviour observed by the teacher is functional and contextual, and can, at times, be misleading. For instance, a child may succumb under unwarranted pressure and threat, and may behave against his or her own will and conviction. Also emotional qualities are such that they are never manifested in isolation and it is for the observer to discern the qualities and draw inferences. It is essential that evaluation of non-cognitive aspects is a periodic and continuous affair as one time observations and references can lead to wrong judgement of students.

4.3 In order to systematize the assessment procedures, a few important points need special attention. A well-designed proforma may be introduced in all schools which help the teachers to keep a record of their periodic observations. It is essential to make the procedure simple enough so that all teachers can easily adopt them as part of their regular work. Secondly, it should be noted that the procedure of assessment in non-cognitive areas demand the use of a variety of evaluation techniques many of which our teachers are not familiar with. It is, therefore, a precondition that proper retraining of teachers is taken up so that they acquire adequate proficiency in the use of various evaluation techniques. Thirdly, evaluation of non-cognitive outcomes cannot be the responsibility of any single teacher, however proficient he or she may be. It has to be a joint endeavour of all teachers in the school. Appropriate organizational mechanisms need to be evolved to institutionalize such joint evaluation endeavours. Lastly, as has been pointed out earlier, inculcation of these qualities is a continuous process of development involving not only the school but also parents and the community. Accordingly, it should be appropriate to solicit the involvement of parents also in assessing non-cognitive aspects of learning.

CHAPTER 7

Towards A Scheme of Learner Evaluation

1. MLLs and Evaluation

1.1. A sound evaluation programme, if carefully designed and effectively implemented as an integral part of an overall educational programme, can be of immense value in maintaining and enhancing the quality of learning. On the other hand, if learner evaluation is neglected or if a scheme of evaluation is rigid, ritualistic and lopsided it can prove equally harmful and damaging to the very objective of ensuring the quality of education. Under the MLL programme, therefore, it is one of the essential preconditions that a comprehensive, illuminative and improvement-oriented evaluation plan is properly developed and consistently practised.

1.2. While developing an effective evaluation system, the following issues, among others, may be paid particular attention:

(a) Prerequisites for following the system of automatic promotion at the initial stage of learning
(b) The need for emphasizing mastery learning at the basic stage of education—the question of quality coupled with equity
(c) A balanced view of learning and evaluation in respect of both cognitive and non-cognitive aspects of development
(d) Accountability of the education system and its functionaries as reflected in the actual achievement of learners.

1.3 The Dilemma of Automatic Promotion

Together with the introduction of a policy of non-detention or automatic promotion in all or initial classes of primary education, a sound procedure of evaluation closely integrated with the process of learning was also to be introduced. In fact, a continuous and formative evaluation procedure is an essential and unavoidable prerequisite for successful implementation of the policy of automatic promotion. It has, however, been observed that there are many instances where the scheme of automatic promotion is uniformly practised but evaluation aimed at constant improvement of learning is either totally neglected or paid inadequate attention. As a result, children often remain weak in the basic skills of reading, writing and computation besides other aspects of achievement. Indeed, it is too early to introduce formal

examination at least in the first two classes of the primary stage. At the same time it is essential to check from time to time in an informal but meticulous manner that all children learn basic skills and other competencies which are the essence of primary education.

1.4 The Need to Emphasize Mastery Level of Learning

At the primary stage most essential core skills and competencies are included in the curriculum. The MLL approach implies a calculated effort to include those minimum, essential and common competencies that all children must master. But the traditional concept of '35 per cent pass' prevalent at the middle and secondary stages of education invariably prevails at the primary stage also which indeed is an impediment in raising the standard of learning. At least at the primary stage and in the context of MLLs it is absolutely essential that the mastery level of learning is aimed at. Only when almost all children succeed well in achieving the basic skills of reading, writing, computation, etc. as indicated in the MLL statements that one can be sure of substantial improvement in quality without sacrificing equity. The traditional concept of low level of expected achievement by the bulk of children should, therefore, be gradually given up and should be replaced by the concept of mastery as the expected standard of attainment for all children. If minimum essential facilities and help are given to schools and teachers, and if continuous feedback, academic guidance and remedial work are given to the learners, it should be possible for most children to reach the mastery level of achievement in basic competencies at the primary stage.

1.5 Cognitive and Non-cognitive Learning

Primary education should include not only the acquisition of knowledge and mental skills but also health habits, work habits, cleanliness, cooperation and such other personal and social qualities that form character and personality. It is known that the cognitive elements such as knowledge and mental skills are relatively easier to assess and, therefore, the non-cognitive aspects are either altogether excluded from the evaluation process or they are not given adequate attention. This imbalance should be eliminated. Simple and manageable means of assessment of non-cognitive aspects of growth must be included in a comprehensive evaluation scheme. Much of this is based on observation techniques aimed at helping children in acquiring valuable personal and social behaviour and in cultivating healthy habits for their well-being.

1.6 Accountability of the Education System

The accountability of individual schools, school system and their functionaries should depend on the ultimate criterion of education, namely, student achievement. There is need to introduce summative evaluation, achievement surveys and other measures as part of an overall, comprehensive scheme of evaluation to determine accountability and efficiency of institutions and their functionaries, and to make other such decisions by administrators, planners and policy-makers based on actual achievement data.

1.7. It may be emphasized at this stage that the competencies included in the MLLs become specific educational objectives or minimum expected outcomes of learning in the context of evaluation. The modality of formulating and presenting the minimum essential levels of learning adopted here is such that it not only helps the primary school teacher and NFE instructor in anchoring the task of teaching to a series of competencies in a progressive manner through various units of study within a grade as well as across grades, but it also assists them and others concerned in conducting competency-based evaluation. Each competency constitutes an expected performance target and each cluster of competencies lends itself to unit testing and formative evaluation. Maximum advantage of this arrangement should be taken by teachers, supervisors, evaluators, textbook writers and teacher-educators in instituting an integrative, improvement-oriented and competency-based evaluation scheme as an inextricable part of a system of basic education for all.

2. Some Operational Aspects

2.1 In the light of the above-mentioned analysis and observations, it is proposed that a competency-based evaluation system be followed as part of the MLL approach to improving quality together with equity. As MLLs are defined in terms of expected attainment of competencies, these competencies themselves should become the basis of developing evaluation tools and techniques, analysis and interpretation of evaluation data, and other such procedures. In brief, a competency becomes a criterion to organize teaching and learning, and it is also used for conducting criterion-referenced evaluation.

2.2. Evaluation at the primary stage should be essentially used for two mutually reinforcing purposes:

(i) To improve students' learning through the diagnosis of their performance, identifying specific inadequacies in mastering one or more competencies or sub-competencies and taking appropriate remedial measures to enable all learners to reach the mastery level. This is a kind of formative or supportive evaluation and is to be carried out by the teacher or NFE instructor as part of the process of teaching and learning.

(ii) To carry out summative assessment for various other types of decision-making by policy-makers and planners, administrators and community members besides teachers. These decisions may be related to promotion; comparison of performance between schools, blocks, districts or states; maintaining or raising the overall levels of learning, etc.

2.3. In view of these twin purposes, a sound evaluation programme should include, among other things, the following common components as indicated earlier:

(i) Continuous informal evaluation integrated with teaching-learning process
(ii) Periodical evaluation through unit testing for academic monitoring and improvement of performance to reach mastery
(iii) Periodical appraisal of non-cognitive aspects of development
(iv) Summative and comprehensive evaluation for checking the attainment of actual standards of performance especially at the end of Classes III and V through achievement surveys and other techniques for various types of decision-making including quality, equity, accountability and efficiency.
(v) Pre-testing and post-testing in different classes during the period when the MLL approach is first introduced and also when an intermediary level of learning is further raised to reach the minimum level proposed.

3. Assisting Teachers and Supervisors in Strengthening Evaluation Procedures

3.1 Development and Supply of Test Items and Unit Tests to Teachers

Normally all teachers prepare their own tests and other evaluation instruments. However, under the MLL programme it is suggested that they should be helped by supplying a pool of competency-based test items, unit tests, observation criteria for non-cognitive aspects of evaluation, criterion-referenced tests and other evaluation material in order to encourage them in practising an effective and comprehensive evaluation system. For this purpose, an item bank may be created at the state or district level, either through SCERTs or DIETs as appropriate, utilizing the services of experienced teachers, teacher-educators and evaluation specialists. Teachers should also continue producing their own evaluation material to supplement the common pool. What is equally important is that teachers should use individual test items for continuous evaluation integrated with teaching besides using unit tests for diagnostic purposes. In addition, they may compile summative tests as and when needed utilizing the item pool.

3.2. Supervisors and district-level personnel should also use item pools for academic monitoring during their visits to schools and for constructing criterion-referenced tests or parallel tests for summative evaluation in selected subjects at the end of Classes III and V. When an item pool is established and extensively used, it is simultaneously necessary to introduce the practice of constructing parallel tests based on a common blue-print. This is particularly needed for establishing comparability of results over years as well as across districts or state level (when the time of testing is not the same).

3.3 School Clusters for Cooperating Work in Evaluation

Where feasible, school clusters or school complexes may be established to help teachers further by creating conditions for them to work together on common issues relating to teaching as well as testing, and sharing their

evaluation materials, teaching-learning aids, remedial exercises, etc. There may be micro-clusters of 4 to 8 schools for certain functions and also macro-level networks of all schools in a block or neighbouring blocks for certain other functions such as conducting a common achievement test at the end of Class V, or organizing large-scale inservice training programmes.

3.4. Districtwise and statewise achievement surveys may be conducted from time to time in different subjects and for different classes. The evaluation results should be fed back to the teachers concerned so that they can carry out necessary modifications in their instructional programmes with a view to improving the performance of their respective schools and classes. When the National Evaluation Organization is established such results should be made available to teachers for inter-state as well as national comparisons. This should also help individual schools, districts and states to revise and raise expected levels of achievement in relation to MLLs.

3.5. As a further support to teachers and learners, it is proposed that competency-based textual materials be produced by integrating learning material with evaluation exercises, unit tests and comprehensive tests, and supplied to teachers for their use in the classroom. This may be developed on the pattern of the IPCL textbooks produced by State Resource Centres for adult literacy. The minimum learning comptencies given here for the subjects of language, mathematics and environmental studies are fomulated in such a way that they have horizontal sequencing within grade and vertical articulation across grades where feasible. These competencies can be conveniently utilized for producing graded textbooks having different types of evaluation exercises, remedial exercises, unit tests, etc. integrated with the text itself. They can also promote a good deal of self-learning and self-evaluation in the upper classes of the primary stage. There are other similar advantages offered by integrated and graded textbooks of the type stated above. In brief, such teaching-learning material intertwined with evaluation material should provide significant help to teachers and learners in reaching the mastery level of achievement.

4. The Issue of Equivalence

4.1. For various practical reasons it appears inescapable that some basic equivalence will have to be established between the products of formal primary schools and NFE centres. The stigma of treating the non-formal mode of acquiring primary education as inferior to the formal one can be removed only when the quality of education achieved through the former is highly comparable with that acquired through the latter especially in key areas of learning. Such comparability will ensure the possibility of lateral as well as vertical transfer of students particularly from non-formal to the formal system.

4.2. The equivalence issue should not be seen just as an administrative measure. While an administrative equivalence will be necessary, what is more significant in terms of quality and equity is to establish academic equivalence

as well. The MLL statements provide the first major operational step in this direction because they have been prepared by keeping both formal and non-formal learning systems in view and by involving NFE instructors and other functionaries in non-formal primary education together with teachers and others working in formal primary education.

4.3 Holding Achievement as Constant and Programme Parameters as Variable

For establishing equivalence between the products of formal and non-formal primary education and also for raising the standard of non-formal education, it is proposed that the level of achievement of NFE students should be expected at the mastery level in respect of MLL competencies and no compromise should be made regarding the expected standard of attainment. The MLL statements suggest the minimum competencies to be mastered by all learners, be they in the formal stream or the non-formal one. Of course, one or more intermediate levels of achievement can be specified before finally reaching MLL by both formal and non-formal systems in certain educationally backward areas as stated in Chapter 2 of this report. But mastery of the levels of achievement indicated by the MLL specification should be the target to reach for ensuring equivalence. Accordingly, various programme parameters of non-formal primary education should be examined and modified as necessary to achieve the target. These parameters may include time and duration of study, nature and quality of learning materials, styles of teaching and learning, competency and training of teachers, evaluation procedures and the like.

4.4. As regards time and duration of learning it is necessary to exercise the principle of flexibility. Time and duration of learning being one of the major programme parameters, it should be allowed to vary within a given range (which is feasible in the NFE system as well as in the formal one), while the level of expected achievement should be held constant and should not be diluted. Also, a radical change will be needed in the nature of learning materials and style of learning. For example, it is important to practise a system of self-paced learning in the NFE programme. Towards this end, the textbooks and other teaching-learning materials should undergo a radical change. Integrated textbooks having in them the competency-based texts, competency-based and improvement-oriented evaluation exercises and unit tests, and materials for self-learning to ensure mastery should be designed and provided to NFE learners and instructors. The graded textbooks prepared under IPCL programme for adult literacy provides a good example of a pattern along which effective and well-tested textbooks and supplementary learning materials could be produced. Where feasible, the use of new educational technology should also be made for both group learning and individualized learning in order to assist the students of NFE programme to attain the desired level of mastery in the core competencies in language, mathematics and environmental studies as indicated in MLL statements. Likewise, there is urgent need to raise the basic competence as well as pedagogical proficiency of NFE instructors who are in essence required to follow multi-grade

teaching, self-paced learning and competency-based evaluation. Their recruitment, training and emoluments should, therefore, be reviewed in the light of their responsibilities and innovative and cost-effective alternatives be thought out. Without having a cadre of professionally competent and dedicated teachers, supervisors and other functionaries of the NFE programme, sufficient justice cannot be done to the millions of out-of-school children who are deprived and disadvantaged and to whom this alternative educational service is offered. These and other pertinent parameters of the NFE programmes should be modified and strengthened with the goal of achieving mastery of MLLs which in turn will result in genuine equivalence between the formal and non-formal streams of primary education. If this is accomplished various technical issues such as holding common or parallel examinations at the end of the primary stage for the students of the non-formal and formal streams, issuance of common certificates and the admission and grade placement of students of the non-formal stream to the formal system would be much easier to resolve.

CHAPTER 8

Action Plan for Implementation

1. Introduction of MLLs in primary schools and NFE centres in the country will require a carefully worked out strategy with necessary phasing. The overall implementation plan may be divided into three or more phases. In the first phase this curriculum plan may be introduced in only a few selected districts or blocks in two or three states after making a thorough preparation. In this phase, a few innovative centres and ongoing reform projects may also be encouraged to follow the MLL approach in order to raise the standard of achievement. Even some individual specialists working in places like teachers' colleges and universities may be encouraged by the Ministry of Human Resource Development to introduce MLLs in selected schools and NFE centres.

2. The chief purpose of this phase should be to understand how the proposed MLLs function in both formal and non-formal delivery systems, what kind of orientation and aids are needed for the teacher in order to achieve the desired level of mastery by the students, what kind of modifications and adaptations are needed in the existing textbooks, how exactly should the system of evaluation and monitoring be evolved and made genuinely functional in different settings, and what other administrative and academic measures would be required to succeed in attaining the ultimate goal of enhancing the quality of learner achievement. The second and third phases should aim at further refinement of MLLs and other related aspects, and systematic expansion of the implementation programme.

3. It is proposed that in the first phase the number of blocks of different districts and states be kept as small as possible, say, about 4 to 6. However, all schools and NFE centres in the block concerned should be selected for implementation. For comparison purposes, matching samples from neighbouring blocks or districts may be taken. In any case, pre-testing must be carried out to establish benchmark data. Appropriate preparatory steps for making this phase most effective should be taken with full participation of local authorities including teachers, headmasters, supervisors and community members. The district level authorities including the office of DEO, DIET (where established), and other concerned agencies should take the responsibility of organizing, coordinating, implementing and evaluating the programme together with local agencies in charge of both formal education and NFE centres. The district should ultimately be treated as a unit of operation for this innovation and for carrying out various tasks involved at

the stages of preparation, implementation, monitoring, evaluation and further expansion in cooperation with local authorities on the hand, and state agencies including SCERT and State Education Department as well as national authorities on the other.

4. In the ultimate analysis, every district should ensure that the minimum essential standards of achievement laid down at the national level in terms of MLLs as a basic and common criterion of reference should be attained by all as early as possible and even go beyond. Different districts and schools within them may need different time frame and resources for obvious reasons and may set their own intermediate phases for moving towards the standards set by the MLLs. However, within the time span of a few years, to be determined locally, all districts in a given state, and all states of the country must ensure the achievement of atleast the minimum levels of learning for almost all children. In certain special programmes and projects such as those launched or being planned in Andhra Pradesh, Bihar, Orissa, Rajasthan and Uttar Pradesh, entire districts may be selected to introduce the MLL approach and intensive efforts be made to produce transactional and evaluation materials, etc. from the resources available for these programmes.

5. In order to assist the teacher, who will play the most central role in this programme, it will be necessary to prepare teachers' handbooks in different curriculum areas. The handbooks should provide all explanatory notes and illustrative material relating to MLLs and their effective use in teaching and testing. The handbooks should also indicate how existing textbooks could be used to achieve MLLs until such time that the textbooks are revised, if necessary, in relation to this approach. Suggestions for the use of supplementary textual materials, teaching-learning aids and activity-based methods should be made in the handbooks such that student learning becomes meaningful, effective and cheerful: Besides the handbooks for teachers of primary schools and instructors of NFE centres, those for supervisors and other local functionaries should also be prepared to improve the efficiency of their respective tasks in the context of the MLL approach.

6. While the draft MLLs are laid down nationally, they allow full flexibility for the use of local illustrations, materials and environment for the purpose of establishing their relevance and functionality in the local context. This particular aspect should be clearly shown in the handbooks so that the process of decentralization operates maximally within the national curricular framework. Moreover, this aspect should be sufficiently stressed in the training and retraining of teachers organized on the basis of MLLs. In course of time, integrated instructional materials may be produced which would include textual material, pupils, worksheets, unitwise evaluation exercises and reinforcement materials, on the basis of specific competencies indicated in the MLLs. It should be worthwhile to examine, in this context, the primers produced under the IPCL programme of adult education.

7. As proposed separately, a continuous and comprehensive scheme of evaluation should be made an integral part of the MLL approach to quality

control right from the first phase of implementation. Teaching and evaluation should be intertwined in various ways including the incorporation of diagnostic testing, remedial teaching, mastery learning and criterion-referenced evaluation including pre-testing and post-testing for monitoring the progress. For these purposes, a large pool of test items, unit tests and other evaluation instruments such as those for vocabulary tests, dictation exercises, mental mathematics and application tests should be prepared and thereby teachers should be given further concrete help in making her/his work optimally efficient and effective. Supervisors can also use this pool of test materials for spot check of student achievement and district level agencies can utilize them for conducting criterion-referenced testing for the comparison of standards and other such purposes.

8. Based on MLLs handbooks, textual materials and item pools, appropriate orientation of teachers should be organized before Phase I begins, and should likewise be repeated before launching Phases II and III under the expansion programme. Similar orientation should be provided to supervisors and other concerned personnel in relation to their respective responsibilities. For all these functionaries a systematic plan of recurrent orientation during the entire implementation programme should be meticulously followed. The recurrent training should be of short duration and should be functional and task-oriented.

9. Efforts should be made to involve the local community in a variety of ways. Where local education committees exist, their cooperation and active participation should be sought, cooperation of those parents (among others) whose children do not attend school regularly should be sought by establishing contact with them and regular attendance of their children ascertained so that they do not lag behind in attaining the expected mastery of MLLs. If there are voluntary agencies or individual volunteers in the community or neighbouring communities who can provide guidance and support to the school especially in regard to raising the quality of education, their involvement and participation should also be explored. Such agencies and individuals may include, among others, retired educators or other professionals, personnel from a primary or secondary training college nearby, and officials of health department and other such agencies in a village who are motivated enough to extend a helping hand to the school or the NFE centre from time to time. In brief, full utilization of human, physical and even financial resources available in the local environment (whether village, town or city) should be made for effective implementation of MLLs.

10. Similarly, for the purposes of getting internal support and mutual reinforcement, networking of neighbouring schools may be introduced where feasible. Such school-clusters or complexes, as proposed by the Education Commission in the sixties, could work cooperatively for sharing experiences and materials, solving certain problems of instruction, evaluation and monitoring among themselves, reducing time and cost by producing tests, remedical materials, etc. cooperatively, and thus helping one another in

improving the quality of the learning process. If the networking or clustering approach is followed, it should be seen that the size of these groups is kept manageable, say, clusters of some 5 to 10 schools in a compact area within a block. Teachers and headmasters may form their councils to run the networks and set agenda and targets for their cooperative work in the light of their felt needs.

11. The implementation strategy, to be effective, will need a sound monitoring system accompanied by a resource support system. This should be established at the district level. Sufficient preparatory work should be carried out at the initial stage, a detailed design of implementation charted out, and necessary financial provision made so that the implementation programme once started moves further with full steam and necessary help in the form of training, materials, evaluation instruments for pre-testing and stagewise assessment surveys, etc., the motivation and enthusiasm of all concerned is sustained, and any unforeseen obstacles and bottlenecks are removed in time. This system should also be responsible for the review of MLLs, etc. at the end of Phase I of the implementation programme.

12. At the national level, the Department of Education of the Ministry of Human Resource Development (MHRD), Government of India, should continue to play a leading role at the implementation stage together with NCERT, NIEPA and NEO (National Evaluation Organisation, when established). It is recommended that the MHRD may undertake the following responsibilities, among others :

(i) It should coordinate the task of ensuring quality with equity in close cooperation with the state and district level authorities as part of the national programme of universalizing elementary education and providing 'Basic Education for All'. The MHRD should mobilize resources in cooperation with various agencies, motivate the people concerned and ensure political will for implementing the initial and subsequent phases of MLLs in all primary schools and NFE centres in the country as a time-bound programme.

(ii) It should periodically review and monitor progress of implementing this programme at the national level and introduce modifications so that eventually the ultimate goal of quality education for all children is accomplished. Towards this end, it should conduct achievement surveys, especially in the language, mathematics and basic concepts of general or environmental studies (social, civic and scientific aspects) and take follow-up action on their findings leading to a drastic reduction, if not elimination, of unjustifiable disparities in the standard of achievement at the primary stage that exist between states, among districts within states, between urban and rural areas, and between boys and girls. For carrying out this work NEO may be established as early as possible.

(iii) Once the task of laying down MLLs for the primary stage takes shape, the MHRD should immediately undertake a similar exercise

for the upper primary stage comprising Classes VI to VIII without which the work done for the first five classes will remain incomplete and will have less chances of success. In fact, this exercise should be extended in course of time up to the end of general education which includes Classes IX and X as well.

(iv) The NCERT, NIEPA and pertinent agencies in the states should be involved in the implementation of MLLs while the MHRD should continue to play its vital role as an initiator, catalyst and cooperator with regard to resource mobilization and monitoring of results. The NCERT may set up a special unit for organizing different phases of implementation, for orienting teachers and other educators, for developing handbooks and other instructional materials aligned with MLLs, for producing pools of test materials and remedial exercises, and for several other such purposes. The task of achieving quality coupled with equity for millions and millions of children who are expected to receive primary education through formal or non-formal delivery systems is by no means easy. Keeping in view the magnitude and complexity of the task, MLLs Implementation Unit should have a sufficient number of competent and dedicated people representing subject specialities such as language, mathematics and general studies as well as pedagogical specialities such as teacher training, preparation of handbooks and other materials, instructional processes, evaluation and monitoring.

13. After examining the experience of Phase I and introducing necessary changes in MLLs and other related aspects, Phase II may be launched to include the whole district or clusters of districts for implementation of MLLs in selected places. If the experience is positive and resources are available, this programme may be introduced in about 50 districts chosen from different states. All important steps such as those indicated in the previous paragraphs of this chapter should be taken in order to ensure that the ultimate goal of raising the quality of learning to the mastery level for practically all children in these basic subjects of study is in no way compromised. Again, after analysing the experiences and outcomes of the second phase and making necessary modifications in the MLLs as well as the implementation strategy, Phase III may be launched to extend the programme to all districts in every state/UT in the country. Needless to state that on the basis of the experience thus gained improving quality and enhancing equity in primary education, further cycles of reform should be undertaken periodically in the light of new needs and developments at the local, national and international levels.

14. A comparative analysis of competencies included in the curricula of literacy and post-literacy programmes of adults may also be carried out to understand the extent to which basic parit· exists between different delivery modes all of which are aimed at basic education. Such an analysis may ultimately lead to establishing a common or comparable set of minimum learning competencies for all adults and children in the perspective of life-long learning.